The Builder.

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Evolution of Design.

IT is probably owing chiefly to the influence of Darwin that what may be called the evolutionary view of things has now become almost a popular one. As far as natural science and the study of natural phenomena are concerned, there is nothing new in evolution. A century ago Laplace brought out his sublime generalisation in regard to the development of the solar and stellar system, known first as the "nebular hypothesis," in which he traced the necessary development of these bodies, by mechanical law, out of the primeval form of nebulous matter. The theory first startled the scientific world, then was accepted; then neglected and regarded as chimerical; finally accepted again. But it had no influence on popular habits of thought; the subject was too ideal and remote. With Darwin it was different; his generalisation dealt with the development of man, and aroused a general interest, after the first opposition to so novel a set of ideas had expended itself. And having accustomed themselves to think of the evolution of man from primordial elements, people have begun to take to the evolutionary view in regard to the works of man. We are not content with recognising, for instance, that the use of certain forms of ornament dates from the earliest known periods of history, or even from what are called "pre-historic" periods; we wish to consider how it came about that they were used at all. In like manner the crude origins of human speech have been investigated by Max Müller and other philologists; the first origin of the use of musical tones is occupying the attention of writers on that form of art. It is with the arts of design only, however, as the expression is generally understood, that we are concerned here.*

To the *Builder* for January 6, 1894, Mr. Walter Crane contributed an interesting paper on "The Origin and Use of Ornament," illustrated by a number of sketches, in which he specially emphasised the idea of the structural meaning and origin of ornament, as arising out of forms of repetition and contrast assumed by various materials in the mechanical process of technical construction. This idea of the structural origin of all ornament is rapidly becoming a commonplace. We hear it enunciated as the positive, the only origin of artistic design, by those who address us with all the authority and infallibility of youth. It saves so much trouble to have one fixed and definite theory which is to explain everything—if only it does explain it. Our impression, however, is that it does not, and that the evolution of art—or, to speak more properly, the evolution of design—is a rather more complicated matter than it appears to the professors of the structural theory pure and simple.

We should say that early forms of design may be traced to no fewer than four sources; structure, imitation, geometrical perception, and symbolism or sign-writing. These overlap, no doubt, to some extent. Structural ornament is imitation of forms which were arrived at in the course of structure, as in the case of ornaments obviously derived from basket-work or from platting reeds together, and as in the naïve reproductions of timber construction in rock-cut tombs. But these were probably not due either to admiration of those forms or to a special desire to imitate them, but to the fact that they had, from habit, become a kind of fixed idea in the undeveloped minds of men in connexion with the special object of the construction of which they at first formed a necessary element. Thus, when men cut out, in early days, those curiously complete carpentry forms in the stone of the Lycian hillsides, it is not necessary to suppose that they thought these beautiful, or that they were imitating carpentry from any direct pleasure in imitation; but that the form had been so long associated, in the minds of one generation after another of timber-builders, with the idea of a dwelling, that they had no conception of a dwelling apart from such a form: it was the shape in which dwellings had been made from time immemorial; and unless these associated forms were present there would be no recognisable sign of a dwelling made by human hands for human occupation.

Imitation ornament in the true sense, that which arises from admiration of or interest in something and the desire to produce something like it, is almost always in primitive times imitative of something in nature, and is thereby separated from the class of merely spontaneous repetitions of structural forms. It may be the imitation of the human figure in a rude form, or of animals, or of leaves or plants, or of such general phenomena as the curl of the waves of the sea, or even, as in Japanese art, of the forms of clouds. This type of design, again, somewhat overlaps another type, the geometrical. For the imitation, generally a very rude one, once made out, is apt to merge into a decorative treatment by repetition at equal distances, in the arrangement of which a simple form of symmetrical treatment becomes almost a necessity. The imitative figure is arranged so as to fill up a space which admits of repetition in a geometrical form.

The symbolical or sign-writing form originates in pure imitation, but imitation only carried so far as to be readily recognisable for what it means. For the object of this kind of delineation is to tell a story or to convey information by pictorial signs. Once the meaning of these signs is understood and established, they fall naturally into a kind of hieroglyphic shorthand; they are simplified in form so far as is consistent with retaining their original meaning while at the same time offering greater facility of rapid delineation. Thus they may assume a form which is to a certain extent decorative; but their original object is purely phonetic.

There remains what we have called the geometrical type of ornament, which is little recognised by most writers on the subject. By the geometrical type we mean to imply a class of decorative repetition ornaments which are not imitative, which never have been imitative, but which are the result of the first discovery on the part of mankind that lines and spaces may have a definite relation to each other, in such a manner that their collocation and arrangement affords a kind of puzzle-pattern which requires a little ingenuity both to put it together and to unravel it. The discovery that square spaces can be enclosed by four lines of equal length; that if these square spaces are put together point to point they leave a series of triangles in the interspaces; these are qualities of geometrical form which we can imagine to have afforded a great deal

* Music is in reality an art of design, in the larger meaning of the word, though common usage has limited the expression to the class of design which is addressed to the sense of sight.

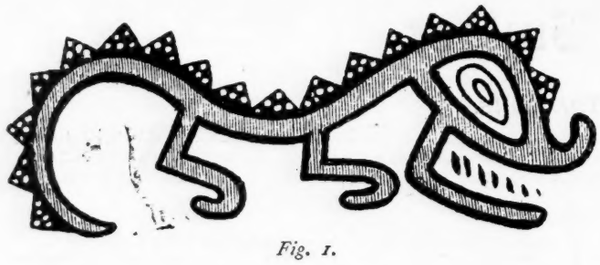

Fig. 1.

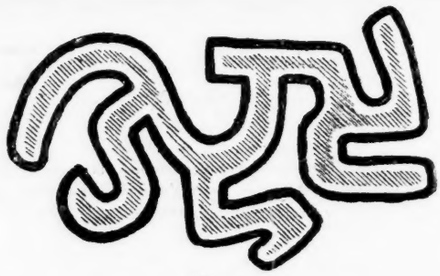

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

of pleasurable exercise to the half-developed perceptions of man in a savage state. The zigzag, equally spaced, is another form which pleases the sense of rhythm, of repetition in equal spaces, while again generating triangular spaces in regular recurrence. Later than these probably came the perception of the spiral, the mysterious curve which turns inwards upon itself, and can be continued round and round till it resolves itself into a point occupying the centre. And in this is contained the germ of the key-pattern, that world-wide type of archaic ornament. The key-pattern is only the principle of the spiral carried out in straight lines and right angles. Various imitative origins of this form of ornament have been sought for or imagined; to our thinking quite unnecessarily. The phenomenon of the geometrical relation of lines and spaces, which is the foundation of all the operations of modern surveying, may very well have been perceptible in its simpler aspects to half-savage mankind; and, once the clue to even the simplest relations of geometrical form grasped, can we not imagine it to have been an almost endless source of interest and speculation to the gradually developing human perception? Is there any need to seek for roundabout ways of accounting for the use of such figures, by imagining them to have been developed from crude forms of imitation of natural objects? Just as the child is father to the man, so the uncultivated human being had in him the germs of scientific perception, and was capable of taking pleasure and interest in arrangements of lines and spaces which afforded a problem to his eye, and to his dawning sense of proportion and relation of size and form.

The probable interest of this geometric sense on the part of pre-historic man seems to be ignored and lost sight of by most writers on the subject of the development of design. They refuse to see anything in early forms of ornament except structural influence or sheer imitation. This seems to be the case in the most recent book on the subject, the clever and suggestive treatise on "Evolution in Art" by Mr. Haddon.* As a professor of zoology, it is of course not surprising that he should feel moved to take a zoological view of the origin of design; and a great many of his examples are very curious and to a certain extent convincing. His example of the decorative alligator from Chiriqui, in the Panama district (fig. 1), is undoubtedly correctly assumed to be such. It is a very curious instance of exceedingly primitive pictorial treatment of an animal form. The general form of a long body and short legs is there; the rows of teeth are indicated; the eye is greatly exaggerated; the spinal crest is developed into a decorative ridging. This last feature is, however, the only really decorative incident in the drawing, the only one in which there is a direct and intentional departure from nature in order to produce decorative effect; all the rest might well be a very rude and barbarous attempt to represent what the person who drew it saw in the creature. What Mr. Haddon calls the "simplified figure of an alligator" (fig. 2), also, like the last example, from the painted ware of Chiriqui, is certainly a most curious pendant to fig. 1. It certainly seems to represent the original picture of the alligator degenerating into a kind of decorative symbol in which there is only just a reminiscence of the original. We do not know, however, that this is a chronological sequence, nor does the author assert that it is. But unless it is proved to be so it loses its force in the argument. It might have been a ruder attempt prior to the endeavour to give a somewhat closer pictorial representation, like the exceedingly rude representations or hints at the human figure which Schliemann found in the older strata at Hissarlik and elsewhere —mere lumps with a crude representation of a head at the top, and a general approximation to the proportions of the human figure. But having got these two remarkable examples, Mr. Haddon seems rather pre-determined to see alligators in everything which comes from the same locality. He calls fig. 3 "Scroll derived from the body-line of the crocodile," and fig. 4 "Fret derived from the body of the crocodile." The explanation of fig. 3 may pass; it is a possible one, taken in conjunction with the two former examples; whether it is a probable one could hardly be concluded unless we had the opportunity of comparing a good many other examples. But to refer number four to a crocodile origin seems mere wantonness. We should call it a mere piece of early geometrical play, the enjoyment of the discovery that a kind of square symmetrical figure could be made out of the arrangement of a single line within a defined space. But Mr. Haddon goes further than this. The five circular ornaments in fig. 5 are all, according to him, successive variations on the alligator motive. It is fair to the author to give his own analysis of them:—

"In A the alligator is coiled up, but still preserves some of the well-known characters" ["characteristics," we presume, is meant] "of that reptile. In B, we have the double hook modification of the alligator's body, but the triangles are placed separately against the encircling line. In the next figure the body-line is omitted, and three dotted scutes alone represent the animal. The fine scutes of the next designs assume a symmetrical position, and the central crossed line *may represent the alligator's body.** In the last figure of this series the cross has become the predominating feature, and the spots have migrated into it, so that the triangles have become mere interspaces."

Really, if Mr. Haddon can see alligators in these figures, he must have alligator on the brain. His alligator is like the celebrated "imaginary mongoose" of the story. He does not even offer us any proof that the five examples are consecutive in point of time, which is at least necessary to the argument.

We do not say this to depreciate Mr. Haddon's book as a whole by any means; it is an interesting book containing a great deal of curious information and illustration, and his alligators Nos. 1 and 2 are well worth having, but the manner of continuing the illustration seems a curious example of the lengths people may be carried in the way of interpretation and assumption when they give too much rein to a preconceived system of interpretation.

Recurring to our remark as to the Greek fret in its most characteristic form being an angular treatment of the spiral, we observe that the author, in commenting on an Egyptian example (fig. 79 in his book), himself suggests the explanation that it may have arisen from an attempt to imitate in textile work a design of similar general features but characterised by curved spirals, the illustration of which he places alongside of it. No one who compared the two could have any doubt of it. In discussing the spiral, partly in connexion with the Ionic volute, the author mentions a number of explanations and origins of the spiral, which appear to us quite unnecessary assumptions. No one who looks at the spiral ornament so common in archaic Greek work could have (or ought to have) any doubt that its use was simply a play of line, a semi-geometric ornament introduced as a simple means of giving decorative effect and of exercising the skill of the carver or the goldsmith (for it occurs in both classes of work). And this is why it appears to us so unnecessary to go about, as some archæologists now are doing, to find out by a laborious collocation of examples a derivation of the Ionic scroll from the Egyptian lotus. There is no necessity for such an explanation of it. The spiral, in its geometric form and with no hint at any natural derivation, was a perfectly familiar incident in archaic Greek work, and no such far-fetched explanation of it appears to us to be in any way necessary. Scientific theorists on these subjects forget that even in very early days of art there may have been such a thing as perception of line and form, and enjoyment of it for its own sake, without supposing the desire to imitate anything in nature. In a well-known Egyptian repeating pattern given by the author as fig. 77, the spirals at the junction of the sections are simply a graceful means of uniting them. The author adds "below each flower is a fan-like portion apparently tied on to the former; this may have some significance or it may be merely a convenient method of finishing off the flower." Neither the ideas of significance or convenience are necessary. Any artist could tell the author that, as a matter of design, the space between the spirals required filling up, and the upper part of the conventional flower design required balancing, and all that is necessary to realise is that the

* "Evolution in Art, as Illustrated by the Life Histories of Designs." By Alfred C. Haddon, Professor of Zoology, Royal College of Science, Dublin. London: Walter Scott; 1895.

* The italics are ours.

designer was a decorative artist with some sense of pattern-designing. But we are constantly presented nowadays with elaborate scientific or symbolical reasons for this or that detail in an ancient ornament, for which the far more simple and natural explanation is that the designers of it had a sense of line and form and balance which they wished to satisfy; or, in some cases, that they were interested in the working out of a little geometrical puzzle of lines and spaces. These are elements in the evolution of design which seem to have been a good deal overlooked by most theorists.

NOTES.

THE "National Society for Checking the Abuses of Public Advertising" held a very successful annual meeting at the Society of Arts on Friday, January 31, which was well attended by members and their friends. The President, Mr. Waterhouse, occupied the chair. The principal resolution, proposed by Sir Lepel Griffin, and seconded by Mr. William Morris, was as follows:—

"That it is a national interest to protect rural scenery from unnecessary disfigurement and to maintain dignity and propriety in the aspect of our towns."

Other resolutions in accordance with the aims of the Society were proposed, and supported by Professor Richmond, Mr. Crackanthorpe, and other speakers. The whole point of the Society's case, we may observe, lies in the word "National" in the first resolution. That which may not be worth consideration if done by one person, becomes a public nuisance if done by thousands. This is the answer to the silly plea of an Essex M.P. in the *Times*, that when times are so bad for the farmer it is tyrannical to deprive him of the fee which he gets for putting up "Carter's Liver Pills" in a field: *i.e.*, because farmers are badly off, therefore they shall be allowed to disfigure the whole country in order to scrape a little money together. Many pickpockets probably are badly off—that is the reason they steal; perhaps Mr. Rasch will take up the cudgels for them also.

A MEETING was held at Bangor a few days ago to advocate the formation of a Welsh School of Architecture; not a School of Welsh Architecture, but an educational architectural school. Mr. T. E. Ellis, who read a paper on the subject, observed that there was no generally diffused taste for architecture among the Welsh people, as there was in regard to music, and that it was desirable that something should be done to create and stimulate such a taste. We are not aware whether interest in architecture is at a lower standard in Wales than elsewhere in these islands; but if it is, possibly some reason for this may be found in the prevalence of a form of religious worship which discourages any great display of ecclesiastical architecture and decoration. It is from religious architecture that the impulse has come in most countries, both Pagan and Christian. In any case, the foundation of such a college as is proposed cannot but have a good effect, and we wish success to the proposal.

THE Arbitrator has not yet given his award in the case in which the Tower Subway Company, Limited, claims 30,000*l.* from the Corporation of the City of London through the opening of the Tower Bridge, but a considerable amount of evidence has been heard, although it cannot be said that it throws much light upon the probable life of cast-iron lined tunnels. At the present day when such methods of construction are so often adopted for underground railways, it would have been interesting to have had some imformation upon the length of time tunnels made in this way are likely to last, but it seems from the evidence given that it is practically impossible with our present knowledge to say, with any certainty, how many years the cast-iron rings forming such tunnels will effectually withstand all the deteriorating influences to which they are subjected. Generally speaking, however, we think if such tunnels are properly constructed, they will not require any further attention from the present generation of engineers or contractors.

WE have received a copy of a letter which has been sent by Professor Boyd Dawkins to the Hertfordshire press respecting the water question in that county, in which he discusses the problem as to whether the construction of the wells proposed by the New River Company will do injury to the surface in the upper valley of the Lea. The letter is in every way gratuitous, and, if we might say so, impertinent. It is based almost exclusively on the evidence and findings of the last Royal Commission on the Water Supply of the Metropolis, and there is absolutely nothing in it of a novel character. It goes on to give the daily average amount of water pumped during 1891 by the New River and East London Companies from deep wells sunk into the Chalk in the area of the Lea, to the south of Ware, and then asks whether this abstraction of water, coupled with the quantity drawn from private wells, affects the surface waters of the district. We are then reminded that considerable divergence of opinion existed amongst witnesses examined by the Commission on this point, so that an Assistant Commissioner was sent to make an independent investigation. In the end, the Commission decided in favour of the water companies, and Professor Boyd Dawkins is enabled to remark that it is "obvious, therefore, that no mischief has been done, as yet, to the surface-waters of the upper Lea" by the pumping. The New River Company's present Bill makes provision for obtaining a further supply of twelve million gallons from six wells in the neighbourhood of Hertford and Ware. It having been so "obvious" that existing pumping does no damage, it now becomes clear that the abstraction of an extra twelve million gallons will do no damage—at least that is what we gather from the letter in question. But the writer is apparently startled by his own reasoning by the time he arrives at the end of his communication, for he remarks that if local damage of any sort be done it will, no doubt, be fairly met by the New River Company. Of course it will; we have the methods of procedure of the water companies of recent years as witness of the fact.

IT is stated unofficially, but probably truly, that Lord Roberts is himself going to look into the condition of the Dublin barracks. It is to be hoped that it will not be only the Dublin barracks which will come under the notice of the distinguished soldier and capable administrator, for there can be little doubt that the state of all the Irish barracks requires to be looked into. It is only when some official of energy and influence takes up a matter of this kind that real good can be done. The death of a few soldiers from typhoid fever, the report of a medical officer, do not ruffle the official surface, and buildings may easily remain in an insanitary state, though this state is a fact well known to the Department. We are by no means satisfied as to the condition of English barracks, and if they were thoroughly overhauled many instances of want of proper sanitation would certainly be found.

THE *Railway World*, in an article signed "X.," advocates the purchase of the Irish railways by the State. It is possible that, under the peculiar conditions of Ireland, such a step would be a benefit to the country; but if it is to be regarded, as the writer seems to imply, as a first experiment towards the nationalisation of the railways in Great Britain, it is better let alone. The purchase of the English railways by the State would be little short of a national disaster; at all events a prodigious blunder. Our great railway lines are the first in the world in regard to efficiency, speed, and careful and conscientious management; why cannot people be content to let them alone and be thankful?

DR. FLEMING gave the third of his course of lectures on transformers at the Society of Arts on Monday evening. After explaining fully the ordinary laboratory method of testing transformer iron he exhibited Professor Ewing's instrument, by means of which tests can quickly be made on samples of iron in the workshop. In this instrument the sample to be tested is rotated rapidly between the poles of a curved magnet, which is free to rotate about an axis in its plane perpendicular to the line joining the poles, and the magnetic lag in the iron is measured by means of the deflection of the magnet, these deflections having been standardised by rotating a standard sample of iron between the poles. The great advantage of this instrument is the rapidity and ease with which measurements can be made, but for accurate work the older method of testing is preferable. There has been a notable improvement in recent years in the magnetic qualities of the sheet-iron supplied by manufacturers for transformer purposes; the results obtained in recent tests would have been deemed incredible a few years back. The lecturer showed a curve which exhibited very clearly how the magnetic losses in the core of a transformer varied after the transformer was put into action. For the first twenty-four hours the losses steadily decreased, and then attained a minimum some 10 per cent. below their initial value. On switching off the transformer, and then measuring the losses when it had got cold, they were found to be the same as at the beginning. Hence in specifying transformers it is necessary to mention the maximum magnetic loss allowable, either when cold or when thoroughly warm. Dr. Fleming dwelt upon the importance of central station engineers testing the transformers which they put in their circuits, and he pointed out the best ways of doing this. He discarded his own three ammeter method, and summed up strongly in favour of the non-inductive wattmeter method. The resistance he showed for absorbing power did not impress us, taking up as it did far too much space. The curves hung up illustrating the efficiencies of transformers were interesting to the younger electricians present.

THE Manchester Steam Users' Association have issued a circular in regard to danger from kitchen and heating boiler explosions, urging the necessity of fixing safety-valves to all low-pressure boilers; a point which has been insisted on frequently in our columns. They rightly recommend a dead-weight safety-valve, not one in which a spring is a factor, and they recommend (also rightly) that the dead-weight safety-valve should be examined from time to time, by prizing up the valve, so as to guard against any chance of the safety-pipe being furred up or otherwise stopped. We may quote from their circular the following observation with regard to high-pressure boilers:—

"There is a difficulty with regard to the action of safety-valves when applied to high-pressure heating boilers. If any water is blown off when hot and expanded, a void occurs in the circulating-pipes as soon as the water cools down and contracts to its original bulk. Such voids disturb the balance of the columns of water in the pipes, and interfere with the circulation. Interfering with the circulation leads to overheating of the coil in the furnace, and sometimes to rupture. As, therefore, a safety-valve is not applicable to high-pressure heating boilers, there is no way of securing them against explosion except that of keeping up the fire and keeping both the boiler and the entire range of pipes hot, so as to maintain the circulation throughout as long as the frost lasts."

A building-owner and builder in Cambridge have been summoned by the Urban Sanitary Authority for contravention of the Building By-laws in erecting a cart-

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shed enclosed with timber instead of with brick walls as the By-law demanded. The magistrates decided that the By-law was *ultra vires*, and non-suited the Urban Authority, giving costs to the defendants. The decision seems absurd; the case was a direct infringement of the By-law, in a structure not by any means so small or unimportant as to claim exemption on that ground. Cambridge is notoriously behind the age in regard to sanitary and constructional practice, and the builders and their employers there seem to be still in that stage in which they resent as an injustice the imposition of proper authoritative control of buildings, and find defenders among the magistrates, who are probably as prejudiced on the point as everyone else. A case is to be stated for argument in the Queen's Bench Division, and we hope the magistrates' decision will be reversed and the action of the Urban Authority confirmed.

THERE has been a fire at the German Emperor's palace at Berlin, in regard to which we observe that the rapidity with which it was got under is attributed partly to the firemen being well acquainted with the interior arrangements of the building. This is a hint worth bearing in mind. In London no opportunities are given to the Fire Brigade to become acquainted with the interiors of our palaces and important public buildings. Yet in the event of a fire in one of them such knowledge might be of the highest importance.

THE report and accounts of the "East End Dwellings Company," to be submitted to the thirteenth ordinary general meeting of the company on the 10th, seems to show that the company is providing dwellings which meet the wants of the poorer portion of the community, at a profit to itself; the accounts for the last year showing a balance of profits of 8,462*l.* 16s. It is stated that whereas the Cressy Houses block at the end of 1894 had forty-nine tenements vacant, at the end of 1895 there were only six vacancies, and all the other buildings of the company were full or nearly so. It would be of interest, however, to know what is the scale of rents, about which no statement appears in the report. The difficulty in the economical provision of dwellings for the poor has always been to provide dwellings at rentals which the poorest classes can afford to pay, and at the same time to render the enterprise remunerative.

WE read in the *Times* that the Earl of Derby has offered Caergwrle Castle and pleasure-grounds to the Hope Town Council on a lease of either twenty-one years or 999 years at 2*l.* 10s. per annum, provided they can undertake to repair and maintain the property. Caergwrle, between Wrexham and the Vale of Clwydd, has been a place of some importance, its fortress defending the passage from the Marches up the vale of the Alyn river. Its ancient name was Caergawr-lleng, or fort of the big legion, and the discovery of Roman remains—comprising traces of smelting-works, and (in 1606) a sudatory, or hypocaust, with tiles stamped "Legio XX."—accords with the belief that it had been an outpost of Chester, where the Gawr-lleng, as the Britons called the Twentieth, or "Victrix," Legion, is known to have been quartered. The castle, reputedly of British origin, stands on the summit of a lofty rock, and on an opposite elevation, across the vale, is the site of Caer Estyn, an ancient earthwork. In the near vicinity are Offa's Dyke, and Watt's Dyke which traverses the parish in its course along the Alyn's east bank. Grufydd Mealor held the castle *temp.* Henry II.; it was afterwards held by David, brother of Llewelyn ab Grufydd, Prince of North Wales. After a short siege it surrendered to Edward I., who bestowed it upon Queen Eleanor. The castle, with Hope and Hope-dale, passed from John de Holland, Earl of Huntingdon, to Sir John Stanley by a grant from Henry IV.: Sir John's descendant, Thomas, second Lord Stanley, was advanced Earl of Derby by Henry VII. It fell into ruin during the next reign. At his division of North Wales into counties after the subjugation, King Edward included the castle with the manor of Hope and Hope-dale in Flint, annexing them to the Earldom of Chester, and they have always been specified in the patents whereby the eldest son of the sovereign has been created Prince of Wales and invested with the Earldom of Chester. It is said that Inigo Jones designed the two neighbouring seats of Plâs Teg (for Sir John Trevor) and Bryn Yorkin, *circa* 1610.

AT Limoges a rather curious and interesting exhibition is in process of formation. It is to be a representative exhibition of ceramic art in France for the last hundred years, and to illustrate the changes in style and manufacture during that period, as well as the attempts made, in recent days, to associate ceramic art with architecture. The exhibition is to open in July, and will remain open for two months.

THE exhibition at the Grafton Gallery is one of remarkable quality, and should not be missed by any who are interested in painting. It is not often that we can find within the walls of one picture-gallery a number of examples of such painters as Israels, Corot, Millet, Dupré, Diaz, Troyon, Rousseau, and Daubigny, grouped together for study. It is true that none of the members of the great French school of landscape-painting are represented by any of their greatest or most important paintings. Diaz indeed habitually painted on a small scale, but Corot, Dupré, and Rousseau show their grandest quality in some of their large works, which are not to be seen here. Nevertheless, there are among these smaller pictures a good many which are of the highest beauty, especially among the Corots; and the collection together of a number of the landscapes of this school serves to illustrate what may be said to be the most purely ideal view of landscape art, in which the aim of the painter is to convey the essential poetry of the scene, in colour, lighting, and composition, without any approach to realistic imitation. It is not the school of landscape which is popular in this country, and it illustrates a tendency to breadth of treatment and ignoring of detail which may be carried too far, as it certainly was occasionally by Diaz. But the whole collection is pervaded by an atmosphere of the "higher art" which is truly refreshing, and which makes one feel that a good deal of our popular landscape-painting is rather vulgar in its aims. The large collection of studies and sketches of various types and personages of modern life, by M. Paul Renouard, is also interesting and worth study, though with an interest of a very different standard.

THE exhibition in Rue Boissy d'Anglais, Paris, organised by the art-club which calls itself by the title "l'Epatant," is just open. The exhibition contains a great many good works by eminent artists. M. Carolus Duran exhibits two very effective portraits, one of a little girl in a gold-coloured dress, against a grey ground, another of a lady in a blue dress. M. Bonnat sends a fine portrait of M. Reyer, the composer, and M. Dagnan-Bouveret one of a lady in black, and there are other excellent portraits by MM. Benjamin-Constant, Humbert, Bouguereau, Cormon, Courtois, Roll, François Flameng, Aimé Morot, and Gervex. Among landscapes the most noticeable works are M. Cazin's "Route," a "Vue des Fortifications" painted by M. Billotte in a delicate grey harmony, and "Etangs de Saint Cucufa" by M. Gerôme, showing all his usual ability but unfortunately also his usual hardness of texture. M. Detaille exhibits a picture, "Veille de la Bataille," representing Napoleon accompanied by his staff and resting his field-glass on the shoulder of a hussar. Sculpture is represented by a small number of graceful works, among them a bas-relief in polychrome by M. Hugues, of very original character, and a "Psyche" statuette by M. Mercié. The enumeration of the above-named works is in itself sufficient to indicate that this is no ordinary specimen of a "minor exhibition."

THE fifteenth exhibition of the "Femmes Peintres et Sculpteurs" has just opened at the Palais de l'Industrie at Paris. As usual, there are a few good pictures nearly lost amid a crowd of mediocrities. Among the few things worth mentioning are Mdme. Demont-Breton's study of sailor figures, and her two portraits of girls, some sea-pieces by Mdme. Elodie Lavillette, miniatures by Mdme. Debillemont, and the works in sculpture by Mdme. Clovis Hugues, the wife of the well-known red-radical Deputy.

THE exhibition of the Society of Lady Artists, open at the Suffolk-street Gallery, is a much larger and more important one than some previous exhibitions of the same Society which we have seen, but it does not alter our opinion that a lady artists' exhibition is a mistake. Lady artists of high ability can hold their own in a general exhibition, and are under no necessity to have a special exhibition of their own. The result is as usual; the majority of the pictures are weak productions, and only two or three exhibitors rise beyond this level. The best exhibits are portraits by Madame Canziani, who may exhibit anywhere. We noted three other works in the large room which were above the average level, and found they were all by the same artist, Miss Ethel Wright. "A Herd Girl," by Miss Colquhoun, is a good little composition. "A Portrait," by Miss Blanche Jenkins, is original in colour, the face being the least satisfactory element in it. Mrs. Jardine's "Bombay," Miss Elias's "Moorland," Miss Stewart Wood's "The Silent Loch" (which may be called a study after Corot), and Miss Maud Ansell's "A Summer Sea," are among the few works which rise above mediocrity. Two rooms are devoted to Handicraft, and form the most interesting portion of the exhibition. There are some good bits of wood-carving; a copper relief, in which "Salamanders" are treated in a decorative manner, by Miss A. C. Brewer, shows originality and character; among other things worth note are a leather screen designed by Miss Alice Hewitt, and executed by A. Gordon (we are left in doubt whether the executant is a lady or not); two bookbindings by Miss Birkenruth; an embroidery, and a wall-hanging, "Pomona," exhibited by the Royal School of Art Needlework. Some things of this kind we observe are exhibited as "designed by the Royal School of Art Needlework," which is absurd. Some one must have designed them; why is not the name given?

THE exhibition of designs for Messrs. Faulkener's "Fine Art Competition" for designs suitable for show-cards, calendars, almanacs, &c., at the rooms of the Institute of Painters in Water-colours, is one of the most fearful collections of artistic vulgarity and crude colour that we have ever seen. Two or three of the works to which prizes have been awarded are clever, but generally speaking the productions show little sense of design and no sense of colour, and the prominent impression produced by the aspect of the rooms was a desire to get out of them again as quickly as possible. Scattered among the larger works in the end room one was surprised to come across Mr. Bacon's clever painting "The Interval," exhibited two years ago at the Royal Academy, and a painting (not one of her best) by Mdme. Henrietta Rae. Both were labelled "Not for competition"; how the artists came to lend them into such a collection one cannot understand.

ROMANESQUE ARCHITECTURE.*

BY PROFESSOR AITCHISON, A.R.A.

THE sole object of these lectures is to try to advance and improve our architecture. The question for the lecturer is how this may be most effectually accomplished, and especially how our future architecture may be got out of the slough of antiquarianism in which it is sunk.

The study of former times is not only useful but delightful. It is supremely useful in furnishing us with precise dates, without which whole branches of knowledge are mere chaos, and delightful by furnishing us the materials for re-embodying the past.

It is almost impossible that some antiquarianism should not dwell in the minds of all persons of thought and intelligence, or, at least, in the minds of such as are not wholly absorbed in the present; for it enables us to picture to ourselves the state of society at different epochs, and the knowledge and capacity of the people who compose it, by the close examination of the writings, the buildings, the dress, the arms, and other appurtenances that have come down to us; while the picture we create for ourselves is more or less true, according to our exact knowledge of all the factors. These epochs may be those of decadence, of savagery, or of improvement, or one of those brilliant ones that we look back on with respect and admiration, when arms and all the fine arts flourished. A knowledge of antiquity enables us, too, to see the progress, retrogression, or deviation that has been made in certain lines of thought or action, and the extinction of other lines.

The masterpieces of literature, of music, of sculpture, of architecture, and of painting that admiration or accident has preserved must be looked on as antiquarian properties, and have been the means by which mankind has raised itself into excellence after being sunk in barbarism.

It was through the study of the fine arts of Greece that Rome rendered itself illustrious in story. It was the adoption or adaptation of Greek music by Gregory the Great that has rendered his chants the admiration of some of the critics of the day.

In the eighth century it was the study of Vitruvius, and perhaps of Roman remains, and the help of Byzantine architecture and architects that made the buildings of Charlemagne's reign so celebrated.

In the thirteenth century the Roman sarcophagus at Pisa enabled Niccola Pisano to revive sculpture, which Dante sang of, while the Roman classics gave Dante his style.

The revival of Greek letters in the fourteenth century probably affected the styles of Bocaccio and of Chaucer, and certainly gave us the superb diction of Milton.

The antique sculpture that had been preserved, or newly discovered, enabled painting in the thirteenth century to gradually raise itself from a Byzantine handicraft into a fine art, and probably the discovery of the pictures in Nero's Golden House stimulated painting to reach the perfection it attained in the fifteenth and sixteenth centuries.

You may possibly think that having begun to curse antiquarianism, I have ended by altogether blessing it, but it is not so. Antiquarianism is a science that has been valuable to everyone by settling dates, by occasionally directing attention to the overlooked masterpieces of their time, and some of these are perhaps the masterpieces of all time, and thus may have been useful to architects; for these are objects in which we can study a new phase of art, by which the desired results have been obtained, and thus learn how to produce similar results ourselves. I will not be longer than I can help, but I want, if possible, to make my meaning clear to you. These remnants of the past are to be used as Roman history was by Machiavelli; it was the substance from which he extracted the art of government.

I will only speak of the emotional side o architecture. Old buildings or their parts are the substance from which we are to extract the art of making a new building look joyous or frowning; stately, terrible, or sublime. We want to learn the art of giving the proper expression to each work we have to do. It is a scandal, not always to the architect, that every building is not emotional, and does not declare its object, so far as this can be declared by architecture. Everyone must see that a summer pavilion or a belvedere wants a different expression from that proper to a tomb or mausoleum. The true architect and the antiquarian are both at one about the studying of buildings in which some high emotional effect has been produced; but then their ways are different: the antiquarian says, copy if you can the one that most nearly produces the effect you want, but if the case will not admit of a copy, study the style, and endeavour to treat your new building as the architect of the ancient one would have treated it. This is building according to antiquarianism pure and simple, and the death warrant of architecture; for you are supposed to have met with something of unapproachable excellence that cannot be improved on, and that will express the knowledge, skill, and emotions of the present day, as it did those of 400 B.C. in Greece, of our era, or of the second century in Rome, or of the twelfth, thirteenth, or fourteenth century in Europe, to which Euclid's corollary may reasonably be added —"which is absurd."

The true architect says—This is not architecture at all; it is copying or masquerading. I am not a Greek, a Roman, a Mediæval, or a Saracen; the age I represent is different from the past. I have to produce analogous effects by other means and in other ways, for none of the requirements can be exactly like those of the past. My construction must be the current construction; and the forms, if they are to please, cannot be exactly like those of the past either, and yet with our new forms we are to get some analogous emotion. The nearest comparison I can make is translating, though that is far from being exact. In rendering a line of poetry into another tongue, where the cadence of the verse expresses the action described, this cadence is often lost. Take as an instance Virgil's well-known line expressing the galloping of horses on crumbling ground—

"Quadrupedante putrem sonitu quatit ungula campum."—"Æneid viii., line 566.

And compare it with Dryden's translation where the sound of the movement, if not wholly lost, is much less suggestive—

"And shake with horny hoofs the solid ground."

Tennyson's version is much better, though the quality of the ground is changed—

"And clattering flints batter'd with clanging hoofs."
—"Dream of Fair Women," 6th Stanza.

but this was not a translation, but a line where the sound echoed the sense in English, that might rival or surpass Virgil's line.

We cannot easily imagine the following expressive lines of Tennyson, being translated into another tongue which would give both the sense and the rhythm :—

"To plunge in cataract, shattering on black blocks a breadth of thunder."—"The Princess," p. 69.

But this is the task we have to set ourselves in architecture, that is, to make our building for embodying our highest aspiration as sublime as the analogous masterpiece of antiquity, but in the current architectural language of the day. I might perhaps better explain it thus: Supposing we were poets in words instead of stone, we want, by the study and analysis of Virgil's and other poets' lines, to express equally well the rushing of an express train.

If any of you have seen *Hamlet* played at the Comédie Française, you must have noticed that the accent and the cadence of the lines are different from those of the original, and that though the acting is superb, one feels that Hamlet, Ophelia, and all the other characters are French, and not English. This is as it should be, for it is a French, and not an English audience that is to be affected.

Modern buildings designed to be like those of the past cannot represent what we want represented; between a Mediæval building and a modern imitation is the difference between the real thing and an imitation in fancy dress. Our wants, our materials, our methods of construction, even our very emotions, cannot be the same as those of any past epoch, nor can the taste, if I may use that much-abused expression, be the same. What we want should be at least all our own in taste and sentiment. I think it is plain that buildings from climates different from our own, and made to excite emotions due to a different state of society and to a different faith, cannot be proper here; but even when the old buildings were adapted to our climate, and the faith was nominally the same, they are still unadapted to us. Take, for instance, a church; it seems to me to be clear that the paraphrase of a Gothic one cannot be proper now; these churches were built for the Romish ritual, and are therefore unfitted for a Protestant ritual. We are much more generally cultivated than the people were then, and our tastes are consequently different; intricate geometrical work is not now the highest art in vogue; the mouldings, though adapted to the climate, are wanting in refinement, and the modern worshipper's Christianity must differ much from that of the Middle Ages. There is much to be said in extenuation of the modern practice of close paraphrase; it was not unknown to the Romans, for, not to speak of Pompey's Theatre, copied from that at Mitylene, there were the imitations of Egyptian architecture in Egypt, and the Temple of Isis in Hadrian's Villa; but as a rule, this practice was started in Renaissance days by Palladio, and not to copy Roman remains was, even to Milizia's days, at the end of the last century, the unpardonable sin. With men's minds full of this false principle, the same plan was pursued when Gothic was revived. These paraphrases should only be the architect's studies, necessary for him to learn his art, but not fit nor meant for publication.

Architecture cannot be stamped with a new form that will take mankind by one man, however great a genius he may be, probably not even by a generation, for we know that each of the great divisions of past architecture that we call a style, has mostly taken centuries to perfect. It may be that the vital principle that started a new style was discovered by one man, or it may be that many independent workers discovered it simultaneously, but it mostly took a generation to frankly accept the new principles, and many generations to perfect it.

There is no rule for making discoveries or inventions, but they generally are made when the tide of human thought sets in that direction, and the searchers are properly equipped for the discovery. We know that natural philosophers from the latter end of the fifteenth century were investigating the motions of the heavenly bodies, and afterwards were trying to find out what it was that kept them in their places. We have all heard of the Vortices of Descartes, as his solution of the problem, which did not, however, convince the philosophers, and all architects know that Sir C. Wren offered books to the value of ten pounds to any of his friends who could discover the right solution. We also know that Newton dscovered the laws, and called the force "gravity," and that he was properly equipped for the discovery.

I think we may say that there is a strong desire among architects to again endow architecture with vitality, if they knew how to set about it; and I think they are agreed that their position as costumiers, to supply to order any known style or all the styles, one for each room in a house, is not a dignified position; but if no advance can be made that will take the public, what can be done? "Those that live to please, must please to live." It is unfortunate that when the great advance in metallurgy came about, the machinery it was used for was almost necessarily hideous, for it is not given to man to make things beautiful, as nature does, without effort. The new machinery enabled mankind to become very powerful, incredibly rich, and to support repulsive ugliness; so that when the engineers used iron and steel for their structures, they mostly made these structures hideous, but as they were for commonplace purposes it did not seem to mankind to be of much moment. The great constructive problems fell from the hands of the architects into the hands of the engineers, who solved them marvellously, but, unlike the architects, who had hitherto joined the art of construction with the art of expression, they simply solved the constructive problem, so that their structures have the same resemblance to architecture that a woman's skeleton has to the Venus of Milo; and at the same time the old desire to embody the highest aspiration of mankind in temples, churches, and mosques took another form.

The public, as represented by the Press, grumble that they do not get a new and an original phase of architecture; but as it is the prerogative of Englishmen to grumble, it is probable that they would still do so if they got it. It is like the country parish where the congregation grumbled at the parson for not quoting Greek, though no one but the parson understood it. It has, too, been the fashion of late for writers, and even artists, to decry æsthetics; Louis Stevenson compared it with ballet-dancing, and Mr. Balfour vaguely and hesitatingly with dressmaking; but in the latter case I think with disastrous effect to his own argument, because he admits "a preferential exercise of Divine power" towards man. And we may therefore believe that all the beauties of nature that man admires are not accidental, but designed for an end; and that end is probably man's purification, solace, and delight; and if it be so, man's

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endeavours to give permanence to some of the fleeting beauties of nature, or to produce analogous effects, is not without an ennobling effect on himself, and exercises a favourable influence on his fellow creatures.

I think the rising generation of architects are doing their best to equip themselves, and that most of them comprehend that architecture is a structural art, and that all an architect can do is to build. Of course, some are led away by the desire to become book or newspaper illustrators, and if this be mainly to get a better living than architecture will afford, there is nothing to be said against it, else they would lay themselves open to Lord Bacon's sarcasm, "As if it were a commendation to know what may be said, instead of what should be thought." What may be the highest ideal of Christendom in the present day I know not; but supposing such an ideal to exist, and that we could discover it, how can the architects create the desire for embodying this ideal in buildings? We cannot give ourselves genius, but we can equip ourselves to the extent of our opportunities and to the grasp of our minds.

It seemed to me that no more useful plan could be followed than that of investigating the rise and progress of Romanesque architecture. The western part of the Roman dominion had been conquered by savages and barbarians in the fifth century of our era, and it was repeatedly overrun by fresh hordes until the middle of the eleventh century, when England was overrun by the Normans. The Crusades formed another phase of this movement, only the West in this case overran the East.

The various tribes that overran Europe were innumerable; we now have no names for most of them, and must fall back on those the Romans used. Many of these savages were of a ferocity and brutality that Dahomey alone could parallel in the present day. The Bulgarian Tartars perhaps slightly exceeded the rest in cruelty, whom we now know by their tribal name of Ogres. They are said to have skinned and roasted every man, woman, and child that fell alive into their hands; but to be called a Goth, a Vandal, or a Hun is not even now considered complimentary. The main difference between these various tribes of savages was their appearance and their ultimate capability of becoming civilised. Ammianus Marcellinus gives a description of the Huns about 375 A.D., which might, except for their appearance, well pass for that of any of the other hordes:—

"The people called Huns, slightly mentioned in the ancient records, live beyond the sea of Azov, on the border of the frozen ocean, and are a race savage beyond all parallel. At the very moment of their birth the cheeks of their infant children are deeply marked by an iron, in order that the usual vigour of their hair, instead of growing at the proper season, may be withered by the wrinkled scars; and accordingly they grow up without beards, and consequently without any beauty . . . though they all have closely knit and strong limbs, and plump necks, they are of great size and low-legged, so that you might fancy them two-legged beasts, or the stout figures which are hewn out in a rude manner with an axe on the posts at the end of bridges. They are certainly in the shape of men, however uncouth, but are so hardy that they neither require fire nor well-flavoured food, but live on the roots of such herbs as they get in the fields, or on the half-raw flesh of any animal, which they merely warm rapidly by placing it between their own thighs and backs of their horses. They never shelter themselves under roofed houses, but avoid them as people ordinarily avoid sepulchres as things not fitted for common use.

In truces they are treacherous and inconstant, being liable to change their minds at every breeze of every fresh hope which presents itself, giving themselves up wholly to the impulse and inclination of the moment; and, like brute beasts, they are utterly ignorant of the distinction between right and wrong. They express themselves with great ambiquity and obscurity; have no respect for any religion or superstition whatever; are immoderately covetous of gold; and are so fickle and irascible that they very often, on the same day that they quarrel with their companions without any provocation, again become reconciled to them without any mediator.

This active and indomitable race, being excited by an unrestrainable desire of plundering the possessions of others, went on ravaging and slaughtering all the nations in their neighbourhood till they reached the Alani, who were formerly called the Massagetæ. . . . Next to them are the Budini and the Geloni, a race of exceeding ferocity, who flay the enemies they have slain in battle, and make of their skins clothes for themselves and trappings for their horses. Next to the Geloni are the Agathyrsi, who dye both their bodies and their hair of a blue colour, the lower classes using spots few in number and small—the nobles broad spots, close and thick, and of a deeper hue.

Next to these are the Melanchlænæ and the Anthropophagi, who roam about upon different tracks of land and live on human flesh."

"They have no cottages, and never use the plough; but live solely on meat and plenty of milk."

"Amar. Mar. Lib." 31, cap. 2, *et seq.*

During the latter part of the time that Rome was the capital, and when the seat of Empire was changed to Byzantium, all kinds of savages and barbarians were enlisted in the Roman armies. We are surprised at a Byzantine general vanquishing Attila and his hordes in 424, until we know that his Gothic allies were mainly instrumental in the victory.

It was by pitting one tribe of barbarians against another that the Roman Empire of the East lasted so long. The barbarians who had served in the Roman armies not only learnt the Roman discipline and methods of fighting, but also the worthlessness of the nation. It was about a century after Constantine the Great deprived Rome of the Prætorian guard, that the city fell a victim to Alaric the Herulian or Visigoth. In 410 A.D. it was again plundered by Genseric the Vandal in 455, and Theodoric the Great became the ruler of Italy in 493, after his assassination of Odoacer. The comparative clemency of the Goths and Vandals contrasts very favourably with the behaviour of Attila the Hun, called the "Scourge of God," who totally destroyed Aquileia in 452, and slaughtered or made slaves of the whole population who could not escape.

Although Rome was doubtless the grand prize, all parts of Europe and North Africa that had been under the governance of Rome and were nominally under that of Byzantium, afforded irresistible attraction to savages and barbarians from all parts of the world. The spectacle presented was like the flocks of vultures on a slaughtered army. You see what they are all doing, but you cannot tell where the obscene birds come from. It was only when a tribe had settled down long enough for the conquered countries or provinces to bear their name, as England, France, Hungary, Bulgaria, Lombardy, Burgundy, Normandy, Andalusia, &c., that any architecture arose. Until the final settling down of the barbarians, Europe was like a magnified drop of dirty water where the strange creatures are constantly swallowing one another without any apparent lessening of their numbers. It was only when some chief of a horde, much abler than most of his compeers, could slaughter or drive back the fresh hordes of savages intent on plundering and burning the newly-settled towns and villages, and butchering the inhabitants, that plague, pestilence, and famine, battle, murder, and sudden death were less prevalent. Very little settling down, however, was done until the barbarians had embraced Christianity. Their Christianity was not ours, but they began to have vague hopes of beatitude, and vague terrors of punishment in another world, and probably ceased to butcher multitudes or to burn down towns for amusement, and they bought their forgiveness for crimes of peculiar enormity by the building and endowing of monasteries, where law and order was to prevail, where industry was again to be implanted, and where learning and handicrafts were to be taught.

During the time that this constant fighting, butchering, and fire-raising went on, with the pestilences and famines that followed them, few skilled artisans or learned men escaped, except, perhaps, where mountains were at hand. It must, however, be said in favour of the Goths and Vandals that though they plundered Rome, they spared the lives of the inhabitants. These barbarians, like the Saracens, brought little or no skill from their homes, except in the case of maritime tribes, who must have had a certain skill in carpentry to build their galleys; possibly some of the tribes had some skill in wickerwork, for the Early Romanesque ornament is full of wickerwork patterns. When any tribe settled down and wanted to build, they must have got for the master workmen some surviving Romans or some imported Byzantians.

It must not be forgotten that from the plundering of Rome by Alaric in 410 till the bursting out of the Saracen savages, was more than two hundred years, for their first successful expedition into Syria was not till after Mahomet's death in 632, so that there was Asia Minor, Mesopotamia, Syria, Egypt, and North-west Africa to furnish skilled workmen and architects. St. Benedict founded the monastery of Monte Cassino in 528, and monasteries in imitation of it rapidly rose nearly all over Europe, and some of these must have been able to furnish architects and artificers.

There is another fact, too, that must not be forgotten, and that is the effect that the barbarian founder wanted to be produced in the monument he had erected. It is said of the Normans who settled at Salerno that the Byzantine and Saracen architects could not express their ideas, but in the latter half of the eleventh century they got Norman architects to do so.

The chiefs of fighting savages would not allow their soldiers, who were the whole male population capable of bearing arms, to do any mechanical work, as Ammianus Marcellinus tells us when speaking of the Huns; so that until they were converted to Christianity, and had settled down, all the architects and artificers must have been Romans or Byzantines. Nominally they were Romans, but at the overthrow of the Western Empire the methods of Roman construction were not absolutely similar to the new Byzantine methods, which reached their perfection about the time of Justinian. Constantine, when he made Byzantium the capital in 330 A.D., started schools of architecture in Italy and North Africa, but how long these lasted we know not. We, however, know from Eusebius of the churches built in various parts of the world by Constantine's order, and that he presented the Lateran Basilica to the Christian clergy, and had the Basilica of St. Lorenzo Without built. We also know the existing fragments of the palace of Theodoric the Great at Ravenna, and the view of it in the frieze of St. Apollinare Within, and the Church of St. Demetrius at Salonica. From the Goths and Vandals having spared the lives of the people when they plundered Rome, there was no difficulty in getting able architects there, as Theodoric's tomb amply testifies.

We begin by having a Roman or Byzantine architect to erect a church, monastery, or palace for one of the barbarian conquerors, for the conquering barbarians could furnish no such skilled person themselves. These architects had not only to get a plan from some similar building erected, but to make it conform as well as they could to the ideas of the conquerors. Doubtless these conquerors, when settled, put their own nominees—mostly their relations, and probably always their countrymen—into the high posts of the clergy, and doubtless the barbarians who were pious, studious, or timid became monks, and some of them studied architecture and the cognate arts.

It would be most interesting if we could unfold the gradual improvement of the barbarians, and see their progress in the arts of construction and arrangement, of stereotomy and stone-cutting, as well as in the production of the emotional effects then desired. What little written information is to be got is of the most fragmentary sort, and most of the information is only to be extracted from the buildings erected at the time that remain. There was one great problem in construction that required solution among all the different hordes that had settled down, viz.: the means of forming a ceiling to their churches that would not burn, for fires were as numerous as they were disastrous. All the heathen savages that overran, raided, or ravaged countries that were settled or settling down, took a particular pleasure in burning the temples or churches, and a burning church was a sure sign, even in Charlemagne's days, of a visit from the Norman pirates; but there were other sources of fire besides that—domestic riot, ignition by lightning, and by the catching fire of the thatched or shingled roofs of the town or village, and thus igniting the church roof.

There were, too, characteristic differences in the progress of the Romanesque style, according to the tastes of the particular horde that had settled down, such as the Angles and Saxons, the Lombards, the Burgundians, the Franks, the Germans on the far side of the Rhine, and the Normans. We must examine any good examples wherever we find them, but it will, I think, be most interesting to follow out those variations that ultimately developed into Gothic. In England there are but few remains before Norman times, and in Italy there was no true development into Gothic, it being there mainly a sort of fashionable decoration.

It may be well to say here, that though the term "Romanesque" is a very useful one, and expresses the distinction between the early work of the barbarians before the emergence of Gothic, it is of modern invention, and was, I believe, first used in print by De Caumont in the first quarter

of this century. In the writings of the time, the buildings were mostly spoken of as being in the Roman style. Professor Cockerell, in his tract on William of Wykeham, gave it as his opinion that Vitruvius had been used throughout the Middle Ages, and we now know that as late as Charlemagne's reign it was in the hands of Scholaro, for we find Eginhard, the biographer of Charlemagne, and by some called his secretary, writing to Vussinus for the meaning of some Vitruvian words and phrases; Eginhard died in 844 A.D.

When Vitruvius ceased to be studied I know not, but the re-discovery of a codex at St. Gall in 1414 by Poggio caused a great sensation, and about 1486 it was printed in Rome.

We want to get the breath of life breathed into our architecture, and we know that a new life was breathed into Byzantine architecture when it was taken up by some of the various savages that overran the Roman empire, such as the Lombards, the Germans, the Franks, the Saracens, and the Normans. We know, too, something more of those that mainly settled in the West, and of their buildings, than we do of the Saracens, who only made a few prominent settlements in the West, in Spain, Portugal, and Sicily.

The physiologists are trying to find out what life is in vegetables and animals, and though the task is beset with all sorts of difficulties that seem insuperable, they have by no means given up the hope of discovering it; and we want to discover what life is in the arts, and how it comes about in our art. We know that the art of sculpture had fallen to a very low state in Constantine's time, for he had to plunder the Triumphal Arch and Forum of Trojan to adorn his own; but construction was as vigorous as ever, in fact, was advancing, for the Basilica of Maxentius had its central vault of the widest span that has been built in masonry, or at any rate till St. Peter's was built. In Constantine's reign architecture flourished, at least as far as the number and size of the buildings; churches were being built all over the Roman world, and at Constantinople palaces as well.

We must, too, suppose that the schools he started were popular, and lasted long, if we call to mind the demand there must have been at Constantinople for new buildings of all sorts, when it had just been made the capital of the Roman Empire.

Constantine died in 337, and Justinian was born in 483, some 146 years after, and in his reign doming took its widest, if not its highest, flight. San Vitale at Ravenna, St. Sergius and Bacchus, the Church of the Apostles at Constantinople, which gave rise to St. Mark's at Venice, and St. Front at Perigueux, not to speak of St. Sophia, were some of the monuments built in his reign, a list of which is given in Procopius.

You all know that a style distinctly different from either Classic Roman or from Byzantine architecture was gradually evolved by the different hordes of savages that overran the west of Europe, generically known as Romanesque, but individualised under the terms of Saxon, Lombardic, Norman, Burgundian, Rhenish, &c., and I shall try to point out the steps by which this transformation was effected, so that we may, if possible, see how we may gradually create a true modern style. We are apparently under much more favourable circumstances than the barbarians were, for they began from complete ignorance, while we have great knowledge and skill, and almost all the styles that have ever been practised in the world are known to us from illustrations or photographs, so that our means of study are perplexing by their very number. We might at first sight hope to succeed in effecting this advancement much more quickly than the barbarians, but, on the other hand, these circumstances may be much more unfavourable than theirs were, for energetic races wholly untutored in architecture may be better adapted to evolve a new style than those versed in architecture of past time.

I propose to point out the successive steps taken in architecture by the various settled tribes of barbarians, so that we may see, if possible, how they proceeded.

Architecture does not spring from nothing, but from a type. Greek architecture sprung from the hut with a verandah; Roman from Greek, but with the adoption of the arch for spanning openings instead of a lintel; Byzantine from the advanced Roman, when the arch had almost banished the lintel, and when new racial proclivities were introduced; and Romanesque from the teaching of new and untutored fighting nations, by Roman and Byzantine architects, aided by Roman and Byzantine models.

Our word "savage" comes from people living in woods, as "barbarian" merely means one who talks jargon, that is, a language we do not understand; but in modern times we mostly mean by "barbarian" a savage who has somewhat advanced beyond his original state, so I think we may fairly call the hordes of savages who had embraced Christianity and settled down, barbarians. Theodoric the Great was, it is said, carefully educated at Byzantium from his eighth to his eighteenth year. Whether he could read I know not, but he declined to learn to write; whether Alboin, who led the Lombards into Italy, could read or write, I do not know, but we do know that Charlemagne could not. Justin the Dacian, Emperor of the West, Justinian's uncle, certainly could not write, and had to sign his name by means of a stencil plate and having his hand held, and did not even speak Greek, the language of the capital. As the barbarians gradually progressed, so as to be able to build and create architecture, they must have learnt from the Byzantine architects, or from being taught architecture in schools or monasteries, and it is not now easy to know when, let us say, the architecture of Lombardy fell into the hands of Lombards, not even the real dates of buildings.

Among Saracen buildings we know the mosque of Amrû at Cairo, founded by Amrû, and the mosque of Omar at Jerusalem, but the probability is that both were originally merely wooden shanties, like Mohamed's mosque at Medina, and we know nothing of the real dates of the present buildings. We all know Fergusson's statement that the mosque of Ahmed-Ibn-Tulun was, in his opinion, the first building of distinctly Saracen style, yet the architect was a Copt, or native Egyptian Christian, and though Tulun insisted on its being of brick, it is very doubtful if he had any influence on the style, always supposing that the ornamental plastering of the building is not of later date like its dome on stalactites. It is not enough to know that a building was founded at a certain date, and to suppose that the building before you on the site of the old one is the one that was founded at the time mentioned; you must, like Cataneo, be perfectly versed in the forms used at the time, and even the style and quality of the work of that period. For the history of architecture, and for the general instruction and delight, we want archæology to give us much more than it has yet given. We want to know the exact dates of Greek buildings, and, if it be possible, to know the geometrical methods in use at the various epochs for getting the contours of mouldings and the Ionic volute; of the instruction given to architects, or at least of the architectural knowledge they possessed. We also want to know if these huts with a verandah were their own creation, or from what sources they got the idea, and from what foreign sources subsequent improvements and alterations were obtained. We equally want to know the exact dates of Roman buildings, and at what time their skeleton framework for vaulting, and their brick-faced rubble walls began, and also the various sources from which variations, both in treatment and in construction, took their rise, and how and what their architects learned during the Empire, for Vitruvius' book seems to have been written before the Empire, and nothing is said of the brick-faced rubble, nor the framework of vaults. We want to know the same in regard to Romanesque, Saracenic, and Gothic; this information would be profoundly interesting to all intelligent persons, and might incidentally be useful to architects. We are, however, infinitely more interested in giving a new vitality to architecture, so that it may go on improving till it drives out the antiquarian interloper. If it were alive and appreciated, it would do this by surpassing the works of its predecessors, as we see was done in Mediæval times, when the ornamented masonry of one period had its back used for the work then prevailing, while its old ornamental face was built into the wall. We want every moulding to tell of its real date by its shape. A skilled antiquarian can tell the approximate date of a building by the peculiar shape of its mouldings and by the prevalent forms.

This happy consummation is only to be effected by the genius and industry of the architects, and by the keen appreciation of the public to the very smallest vital advance. We now hardly discern the vitality given by Cimabue to the old Byzantine painting, but it was keenly felt by the Florentines of his day, or they would not have carried his picture in triumphant procession through the town. You must recollect that it was not as if the change was from Byzantine handicraft to the pictures of Masaccio, Michelangelo, Raffaelle, Tintoretto, or Titian, but the just breathing of the breath of life into a dead art. If this step could once be made in architecture, and be appreciated by the public, then all the invention and energy of the architects would be concentrated on advancing one new phase of art, and not be wasted in paraphrases of every dead style the world has seen, and would relieve all the subsidiary arts from the ugly business of forgery they are now engaged on. The great painters and sculptors, it is true, naturally refuse to imitate semi-barbarous work which they can so infinitely surpass, but too many of the lesser men are forced to do it for a living. It is surely worth all our efforts and all our pains to try and set our grand art on its feet again, and to send it forth on its progressive task of civilising and charming mankind.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

WOOD-CARVING.

THE seventh ordinary meeting of this Institute was held on Monday last, at 9, Conduit-street, Mr. F. C. Penrose, M.A. (President) in the chair.

The late Lord Leighton.

The President said: Gentlemen, you will not be surprised that I have to say some words on a subject in which we all feel a very painful interest. I refer to the death of our Hon. Fellow, the late Lord Leighton, whom many of us have seen to-day interred in our great Cathedral, in a worthy tomb close by the resting-place of Sir Christopher Wren. This is not the time to sum up the doings of our late Hon. Fellow, but I feel sure that this Institute would desire that a resolution of condolence should be sent to his near relatives, and to the Royal Academy, over which he so worthily presided. I, therefore, propose "that the Institute record a resolution of deep regret at the death of our late Hon. Fellow, Lord Leighton."

Mr. William Woodward seconded the resolution.

Mr. H. Stannus supported the motion, and referred specially to the late Lord Leighton's kindness and generosity to the younger men. As one of those who had benefited by his kindness and friendship, he would like to bear that testimony to Lord Leighton's character.

The motion was unanimously agreed to.

The Royal Gold Medallist.

The President next announced that the Council proposed to submit to Her Majesty the Queen the name of Mr. Ernest George (Vice-President) as a fit recipient of the Royal Gold Medal for the current year, for his executed works as an architect.

Papers were then read on "Wood-carving and Wood-carvers," by Messrs. W. H. Romaine-Walker, W. Aumonier, J. E. Knox, and W. S. Frith.

Mr. W. H. Romaine-Walker, in the introductory paper, observed that he should treat the subject in its relation to the ornamentation and enrichment of construction. Wood-carving had suffered from the decline consequent on over-production. The public mind had become vitiated by vulgar and meaningless enrichment overloading so-called "Art Furniture," the salesmen of which were accepted by a vast majority as the oracles of public taste. It followed that much of the delicacy of perception possessed by our forefathers had been lost. For remedy they must look to the architect. He must take care that the carving he introduces into his work shall balance well with the parts, and suggest necessity rather than caprice. A sense of thought and fitness permeated the work of a bygone age. Nothing in the ornamentation existed for its own sake; each *motif* played its part in the general scheme: the balance of plane surface and enrichment was carefully insisted on, the relative value of light and shade ever kept in view. To achieve such work to-day there must be, what existed in times past, a closer bond of sympathy between architect and craftsman. A carver should be selected whose bent of mind was most in accord with the architect's, and treated, not as a tradesman, but as a brother artist. Blunders would be avoided, triumphs achieved, by taking him into confidence while the drawings were still in the rough. In enriched mouldings it was desirable to have a few inches worked in soft pine and carved before the drawing was finished; faults could then be easily corrected. A preliminary model was absolutely essential with larger surfaces, as panels and friezes, in order to learn the most effective

relief to give to the carving when placed in juxtaposition with its environment. The architect should express his fancy and the object he wished to develop on paper, giving every possible detail to enable the craftsman to interpret him successfully. He should, however, allow the exponent of his thoughts some liberty of action, else would he take from the executed work its soul, and leave it but a lifeless production. After discussing the position of the art during the Gothic era and the Renaissance, the spirit which actuated its exponents, and the methods of treatment at those periods, the lecturer turned to the work of Grinling Gibbons, and dwelt upon its special characteristics. Gibbons's *appliqué* work, which had been criticised as meretricious, the lecturer was disposed to defend for high-relief work as being much more durable, the natural disadvantages of the wood being more under control. The lecturer then considered the kind of carving applicable to the decoration of large and small rooms, described in detail the treatment and processes used on work intended to be gilt or polished, and enumerated the merits and demerits of the woods most commonly employed. Some hints as to the best methods of executing and testing the work, and a few words of advice to young designers, concluded the paper.

Mr. W. Aumonier, in the second paper, considered the subject from the point of view of the craftsman. As examples worthy to be followed in the present day, possessing in their different ways all the true character and treatment which should be looked for in wood-carving, he cited the original work in Chester Cathedral, that in the chapel of King's College, Cambridge, and in the choir of St. Paul's Cathedral; the carving in the choir of Amiens Cathedral, and the early work of Sant' Ambrosio, Milan, and Santa Maria in Organo, Verona. In wood-carving all the beauty should be evolved out of the material itself; being wood, it should retain the characteristics of wood, and not be made to represent marble, bronze, silver, &c. To this end the carver must be a strong man, fully alive to the capabilities and susceptibilities of his material. He will combine freshness and grace. Freshness, because the work grows under his own hand, untrammelled by any mechanical appliance; his cuts and gouge-marks being shown in it freely and fearlessly. Grace, because there is no form the artistic mind can conceive but may be obtained in wood. The work should always be, or appear to be, carved out of a solid block. Not only the design, but the actual carving itself, should be carefully considered with a view to its ultimate position and the light it will receive. Even if close to the eye, when a certain finish is demanded, it should still show its cuts and tool-marks fearlessly, and be deepened in parts to make it tell its proper tale in the combined scheme of decoration; while if it is going a great height or distance from the eye, it should be left as rough as possible. For work to be done in a proper spirit the carver must be "free," his fancy allowed scope to soar, his gouge some play to slip and make mistakes. The best method of working is from drawings—rough, full-size charcoal cartoons. Clay or plaster models are useless, and even immoral in their tendency. Once put a full-size model into a carver's hand to copy, and he sinks to the level of a mere copying-machine, losing the power of concentrating his mind on his work as an art, only to retain the skill of making an accurate copy of the dead plaster he sees before him. But give the carver a rough charcoal drawing to work from, and he must exert all his ingenuity to properly interpret it. The lecturer further dealt with the question of suitability of design, and concluded by a reference to the artistic relationship of the architect and the wood-carver.

Mr. J. E. Knox, who followed, enumerated the essential requirements of the wood-carver in the way of tools, &c., and the qualities of the woods most in use. Efforts had been made in England during the last thirty years to regain the position held by wood-carving in the seventeenth and eighteenth centuries, with a result that, in the present day, British wood-carvers were quite equal to their ancestors in the last two centuries, and only lacked the opportunity to exercise their knowledge and skill. One of the chief drawbacks a wood-carver suffered from was the limited time allowed for the proper consideration and execution of his work. Pressure was put on him by builder or owner, and he was compelled to complete hurriedly and in a manner unworthy of his powers. Estimating was another snare—several years' practice was necessary to enable a man to estimate readily the cost of carrying out a design. Many suffered through inconstant employment, and consequent falling off in aptitude. Some very clever carvers, doing beautiful work in one style, floundered painfully when knowledge of character or other styles was required. The young aspirant should visit the cathedrals and churches remarkable for their carvings, and study the styles and peculiarities of each. The instruction given at popular wood-carving schools was of little practical value, being of a very elementary character; pupils wasted their time there in the belief that they were learning a profitable trade, to be cruelly disillusionised when they tried to get employment. On this point the author suggested that a lasting good might be done for the present and rising generations of wood-carvers if a learned body like the Royal Institute of British Architects could see their way to giving free lectures on the various styles and characteristics of wood-carving to members of the craft. Lantern views of photographs of the best examples at different periods, with explanations of each style and its peculiarities, would be of the greatest advantage. Such lectures should be printed and given at every Architectural Society in the kingdom, and repeated every session.

Mr. W. S. Frith, in the concluding paper, comparing wood, which had always been a sculptor's material, with the other materials more usually employed in sculpture, remarked that its texture and warmth were qualities so agreeable that it was pre-eminently the material above all others suited for architectural furniture. It was essentially the material for the display of imagination and fancy; groups or ornaments inappropriate to stone or marble were quite fitting in wood. It was remarkable, considering the large sums spent on upholstered furniture, that there was so little demand for choice wood-carving beyond the foliage order. Doubtless it was because wood sculpture could not be conveniently produced from the clay model. Few wood-carvers received a sculptor's training, and in the treatment of the human figure in wood correct knowledge of form must go with knowledge of the material in which it is to be represented. The author concluded with some general hints on the method of treatment of the special branch of the art.

Mr. Stannus proposed a vote of thanks to the readers of the papers. He hoped, in addition to these exceedingly interesting addresses, they would have some practical demonstration of the noble craft of wood-carving. He took it that the writers of the papers had been selected by the Art Standing Committee, and it was an illustration of the great value of that body, to whom they were much indebted. There was also in the room an exceedingly interesting collection of examples from South Kensington, and he would also include the authorities there in the vote of thanks.

Mr. B. F. Fletcher, as an Associate of the Institute, seconded the vote. He believed that any discussion would turn largely on the question of models, and he did not quite see how architects were to know the value of light and shade in connexion with carving if they had not some model to show it. Therefore, although it might be desirable from the wood-carver's point of view not to have a model, the architect, he believed, would desire to have one. Mr. Aumonier, in referring to the schools of the Carpenters' Company, had said that they did not turn out very good men. He (the speaker) believed that they might not turn out men worth their 2*l.* or 3*l.* a week, but the instruction given must at least be improving the general standard of technical ability. The result might not be immediately visible, but he believed it would be apparent in course of time. Mr. Frith had referred to the question of getting men to design in the ancient styles, but architects at the present moment rather laughed at that sort of thing, because they thought they could design in a new style of their own. He thought, with Mr. Frith, it was absolutely essential that craftsmen should study the ancient styles, not for the purpose of reproduction, but simply for the knowledge to be gained in a technical way. In fact, he would be sorry to see the Carpenters' or any other Company directing the designing only of a certain period. It seemed that no man in the nineteenth century could produce a real copy of fourteenth-century work, and it would be unwise to try and do so, besides fettering the man's natural inclination, and turning him into a mere machine. He had happened to be in St. Paul's that day with Mr. Caröe, and they had been discussing the screens of Grinling Gibbons, Mr. Caröe being of opinion that, as examples of that type of wood-carving, they were probably unequalled in the world. It therefore seemed to him (the speaker) that if they were to develop carving it should be on English lines, and on those of that great master of the craft.

The vote of thanks was then put and very heartily received.

The President announced that the next meeting would take place on the 17th inst., when Mr. R. Phené Spiers would read a paper entitled "Saint Front de Perigueux and the Domed Churches of Perigord and La Charente."

Some interesting demonstrations of practical wood-carving closed the proceedings.

MAGAZINES AND REVIEWS.*

THE *Gazette des Beaux-Arts* this month deals chiefly with subjects of the history of art. M. Henry de Chennevières contributes an article on the pictures by Tiepolo in the Edouard André collection, especially the important painting of the reception of Henri III. by Contarini. The Duc de Rivoli's article on "Les Livres d'Heures Français" is an interesting contribution, illustrated by reproductions of some of the quaint engravings of religious subjects with which these books are decorated.

"The Walls of Constantinople" form the subject of an article by Mr. R. Davey in the *Art Journal*, chiefly interesting from its illustrations. Mr. Wedmore continues his article on the revival of lithography; among the illustrations two, a sketch on the Surrey bank of the Thames, by Mr. Roussel, and "Brentford Eyot," by Mr. Geo. Thomson, are excellent specimens of the kind of work for which lithography is best suited. The illustrations to the article on "Recent Artistic Staffordshire Pottery," by Mr. O'Fallon, suggest that imitation of past styles plays rather too large a part in the designing.

The January number of the *Portfolio*, which only reached us at the end of that month, consists of a monograph on "The Picture Gallery of Charles I." by Mr. Claude Phillips, an endeavour to trace the history of, and to identify, the pictures in the large collection purchased by Charles I., and afterwards dispersed. It contains a great deal of interesting information and suggestion, and is the result evidently of a very thorough study of the subject.

The *Architectural Record* devotes an article to the French Exhibition of 1900, some conclusions in regard to which will probably now have to be revised. Other articles are on "Christian Altars and their Accessories," "Architecture in Spain," "French Cathedrals," &c.; all copiously illustrated.

The *Engineering Magazine* contains an article by Mr. Russell Sturgis on "Architectural Sculpture in America"; the article is confined to decorative sculpture, in which, as the writer says, the Americans have made considerable, and we may add successful efforts, of late years to introduce some novelty in motives and treatment. Some of the examples given show a good deal of piquant and original fancy. The same journal gives, under the heading "Architecture and Building," a page reproduction of Mr. Goldie's "Interior of Hall, Ashorne Hill," published in our issue of December 14, 1895, without giving the name of the architect and without stating that it is reproduced from the *Builder*, as we have no doubt it is.

The *Artist* is a very well illustrated number, with no special points, unless we may mention as such the predominance of illustrations of various forms of decorative work—posters, book-covers, "Fitzroy pictures" (the style of chromo-lithographs produced recently by some able decorative artists for the decoration of schools).

The *Antiquary* contains an article on "The Megalithic Temples of Tripoli," a kind of Indian Stonehenge on a more extensive scale.

Stone, a Chicago magazine, which we have not seen before, contains a well-illustrated article on "Practical Carving," and others on "Notable Stone Buildings in New York" (illustrated), on "Onyx Marbles," and on practical subjects such as "Quarrying," "Practical Masonry," &c. It is a publication of considerable interest to architects and masons.

A new scientific Monthly appears under the title *The Digest of Physical Tests*, being a *résumé* of practical tests made in the laboratories of the

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon.

world. This is a new idea, and may prove most valuable. The first number includes accounts of tests of cement-mortar, tests of belting, of iron and steel, heat-tests for cement, &c., &c.

The "Quarterly Journal of the American Public Health Association" is an important publication, containing several valuable essays on sanitary subjects. The article with the sensational title "The Mississippi as a Sewer" indicates that there is a great deal to be done in clearing the great American rivers from the contamination to which they have been subjected from primitive systems of sewage discharge. "The Ohio was the red man's 'beautiful river'; it is the white man's sewage drain."

In the *Contemporary Review* Mr. Herbert Spencer gives this month the Evolution of Sculptors, who, like architects, are regarded by him as having commenced their work originally as a religious rite in making memorial effigies of persons whom the tribe wished to honour. Mr. Spencer, by-the-way, maintains that the art of sculpture preceded that of architecture; the making of the commemorative image preceded the built tomb. Sculpture has its root in "Ghost-worship," and the sculptor, in his primitive form, is one of the agents of this worship, and was either the priest himself or worked under the direction of the priest. All this may be true, but we do not believe that it is necessary to account for the existence of sculptors in historic and civilised days, and we surmise that the art would in modern days have been taken up, as such, had there never been any "Ghost-worship" in the case.

Scribner includes an article of some importance on "Design in Bookbinding," with a number of illustrations, which appear to be selected, and very well selected, to illustrate the writer's protest in favour of greater reticence of style and design in book-binding, in which we quite concur with him. Among many recent book-bindings there is too marked an endeavour to attract attention.

The *Revue Générale* contains an article on "Le Projet du Loi sur les Règlements d'Atelier," which enters to some extent into the position of the building-artisan in France, in his relations to the capitalist and building-owner.

The new international magazine, *Cosmopolis*, written (so far) in three languages, English, French, and German, seems likely to be a valuable addition to the list of monthlies. The number for this month contains the commencement of a series of articles on "l'Œuvre Scientifique de Léonard da Vinci," by M. Eugène Müntz, whose name is sufficient to indicate their value.

Le Monde Moderne includes an article on "Les Châteaux de Normandie," containing illustrations of some which are not very well known.

The *Century* includes an article on M. Puvis de Chavannes, with a portrait and illustrations from some of his works.

In the *English Illustrated* Mr. Grant Allen devotes a short article to an altar-piece by Perugino in the Certosa at Pavia, the one to which the St. Michael in the National Gallery formerly belonged. The article seems rather deficient in point; its main intention seems to be to comment on this work as specially illustrating some qualities of the Umbrian school of painters.

The *New Review* contains the second of a series of articles under the title "Made in Germany," treating of iron and steel manufacture and the extent to which Germany is superseding us. It is a seriously-written article, and worth the attention of English manufacturers. Among other points the writer remarks on the German economy of their material in manufacture, the arrangements of one large plate mill being such as to involve 15 per cent. less waste of material than is the case in English mills. The same number contains an article on "The National Portrait Gallery" (the pictures, not the building) by Mr. O. Winter. The author's view, that the object of the collection is historical, not æsthetic, is of course the correct one in the main. He asks the question, which is certainly a pertinent one, why the portrait of Mr. Swinburne forms the sole exception to the rule that portraits of persons still living are excluded. Mr. Swinburne is our best poet in these (poetically) bad days, but we certainly do not see what claim he alone has to enter the National Portrait Gallery before his time.

The *Pall Mall Magazine* contains a well-illustrated article on "Penshurst, and its Memories," and another on the "Reading Room and Iron Library of the British Museum," headed by an engraving of old Montague House, the first home of the British Museum, and which occupied part of the present site of the modern building.

The *Cornhill* contains a pleasantly-written popular article on "Our Old Town Walls."

CLERKS OF WORKS' ASSOCIATION: ANNUAL DINNER.

THE thirteenth annual dinner of this Association was held in the King's Hall of the Holborn Restaurant on Monday, Mr. Edwin T. Hall, F.R.I.B.A., occupying the chair. The company numbered about 300, and among those present were Professor Banister Fletcher, Mr. James Brooks, Mr. Aston Webb, Mr. H. Chatfeild Clarke, Mr. J. S. Paul, Mr. Stanley Clarke, Mr. J. Sheppard, Mr. T. Simpson, Mr. E. W. Nightingale, Mr. J. E. Drower, Mr. F. Dashwood, and Mr. A. Ritchie, C.C.

The loyal and patriotic toasts having being proposed by the Chairman, Colour-Sergeant J. Aitchinson responding for "The Army, Navy, and Reserve Forces,"

Mr. E. W. Nightingale proposed the toast of "The Architects and Surveyors," coupled with the names of Mr. James Brooks and Mr. J. E. Drower.

Mr. Brooks, in the course of his reply, said that no architect could expect to carry out his work to perfection without an honest and upright builder, and the builders in every part of England were most honourable and trustworthy men. The clerks of works were also men of integrity, and architects had to depend upon them for material assistance in their work.

Mr. Drower, replying for the surveyors, said a friend of his had informed him that the days of quantity surveyors were numbered, and that the clerks of works would also soon be out of a job. It was true that quantity surveyors had had a small part of their business chipped off, but there was a good deal left yet. No doubt the clerks of works would stand a much better chance of getting those snug little berths from which the surveyors would be excluded.

The Chairman then proposed the toast of the evening, "The Clerks of Works' Association." After referring to the objects of the Association, he said it consisted of something like 140 members, and he hoped that the present gathering would result in an increase of numbers. Those who had the pleasure of associating with the clerks of works knew what an invaluable aid they were to architects. Their relations to architects were peculiar, in that they were of necessity confidential relations, and every member of his profession must have felt how much he was helped by association with an honourable and upright clerk of works. It meant that his works went well, and also lack of friction with the builder, because a clerk of works was a man who endeavoured to assist in carrying out works with the least possible friction, and with the utmost uprightness as between man and man. Those confidential relations naturally produced esteem between the architect and the clerk of works, and they became mutual friends. In conclusion, he expressed the hope that the Association might live long and increase in numbers, and always be composed of such honourable men as those who now belonged to it.

Mr. T. Simpson (President), who responded, said it was most gratifying to find that the Association was becoming more widely known among architects and others. Its objects were primarily to bring together men of the same calling, to assist each other by mutual exchange of ideas, and to help members in getting appointments otherwise than by advertising. Those and kindred objects had been successfully carried out. The Association endeavoured to enrol only the best men, and he hoped if any architect engaged a man who did not prove to be quite up to the proper standard he would not be too severe on the Association. Public bodies were trying to out-do each other in paying good wages to their workmen, and he thought the time was not far distant when the clerk of works would also be considered in this respect. In conclusion, he stated that there had been fewer members out of employment during last year than for some time past.

Mr. J. Wilkinson then gave the toast of "The Visitors," coupled with the name of Mr. Aston Webb, who, in response, said architects and clerks of works alike were devoting their lives to one great and noble object, namely, that of building good and strong buildings.

Mr. W. S. Woolacott, in proposing the toast of "The Worshipful Company of Carpenters," said that nine years ago the Association took up its abode at the Carpenters' Hall, and from that day to this they had received nothing but kindness from the Company. The Company gave the members access to an excellent library, and they were also manufacturing clerks of works, by means of the theoretical and practical instruction they were imparting to the young men in their schools.

Professor Banister Fletcher responded, and in doing so said that, while the Carpenters' Company did not "manufacture" clerks of works, they considered it most essential that more education should be given to those who desired to pursue any particular kind of work. There was a time when every young man had to serve an apprenticeship and learn a trade, but to-day that was not the case, and it was to supply that want, and not to manufacture any artificial article, that the Carpenters' Company were so eager to impart technical education.

The other toasts were "The Hon. Treasurer (Mr. J. Oldrid Scott)," proposed by Mr. G. Peacock, and responded to by Mr. G. M. Berry; "The Press," proposed by Mr. A. Ritchie, C.C., and replied to by Mr. J. Brady, the editor of the "Journal" of the Association; and "The Chairman," proposed by Mr. R. Wheeler.

THE SURVEYORS' INSTITUTION: STUDENTS' PRELIMINARY EXAMINATION.

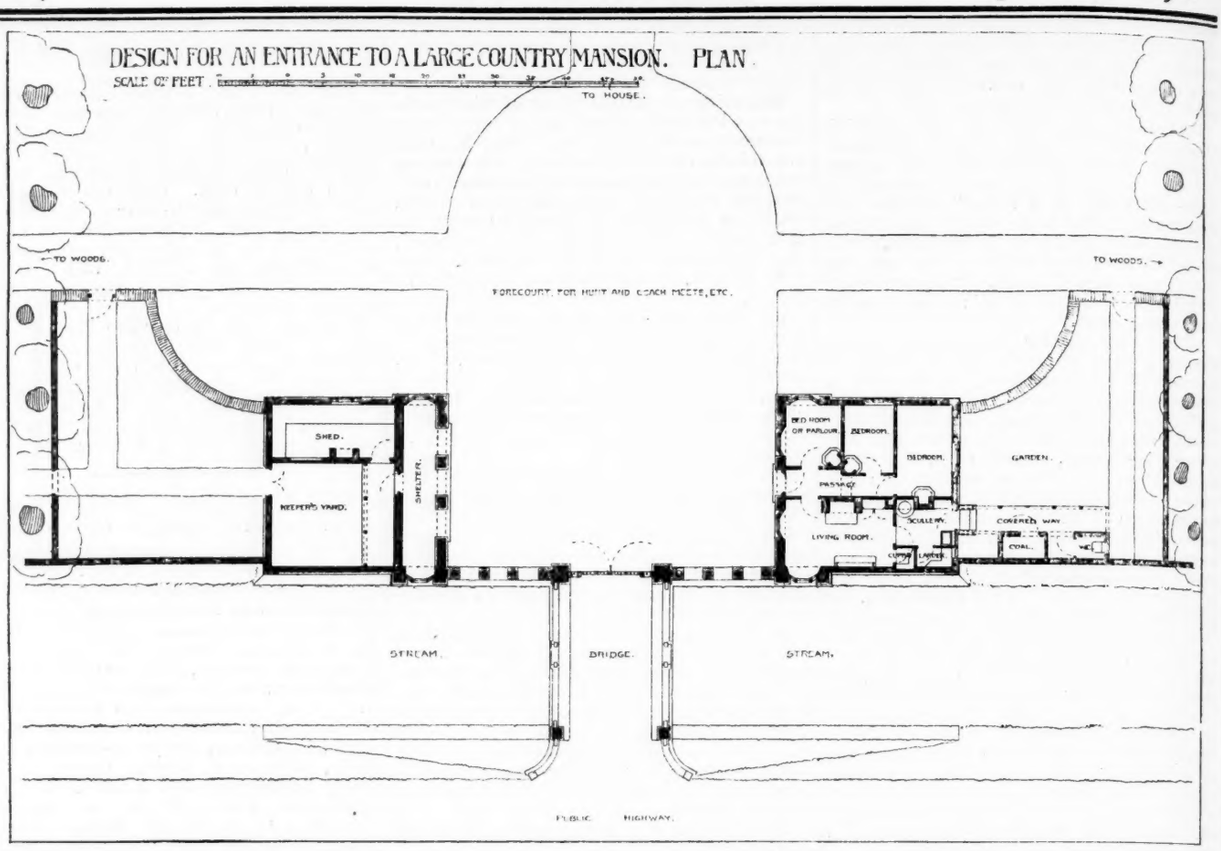
OF the candidates who presented themselves at the preliminary examination of the Surveyors' Institution, held concurrently in London, Manchester, and Dublin on the 22nd and 23rd ult., the following satisfied the examiners:—*England and Wales.*—A. G. Andrews, Chester; J. G. Bayes, Bedford; G. A. Blyth, Felstead, Essex; D. Briggs, Brigg, Lincolnshire; C. F. Cargill, Masham, York; H. F. Carr, Appledram, near Chichester; W. D. Catleugh, Newbury; J. Constable, Wandsworth; E. A. Cook, Henley-on-Thames; H. F. Cooke, Clifton; L. Corlett, London; G. E. Cragg, Summerhow, near Kendal; G. Cutler, Blackheath, S.E.; F. H. A. Dancaster, Boscombe; C. T. Darnell, Blaby, Leicester; P. Denniford, Teddington; W. Denton, Wadsley Bridge, Sheffield; A. C. Driver, London; J. H. Dunt, Upper Tooting, S.W.; A. C. Ellis, Highgate, N.; A. R. Ellis, Bedford; J. Forrest, Blackburn; W. S. Freuer, Swaffham; H. B. Harrison, Dyrham, Chippinham; T. P. Hartley, West Hampstead, N.W.; R. C. Hassett, London; L. G. Hawkins, Downham Market, Norfolk; H. C. Heath, Blackheath, S.E.; E. R. Hinchsliff, Crewe; H. N. Hilliard, Writtle, Chelmsford; H. Hinks, Croydon; G. Howland, Coleshill, Amersham, Bucks; M. G. Humphry, Royston, Cambs.; T. A. James, Acton; R. Johnston, Clapham Common, S.W.; S. M. Lampard, Clapton Common, N.; R. Leake, Wood Green, N.; H. Little, Carlisle; Donald De F. Lloyd, Wellington, Somerset; E. G. Lomax, Kensington, W.; E. H. Longley, Barnsley; E. A. Lumley, London; G. E. Marshall, Handsworth, near Sheffield; J. P. Martin, Tring; E. E. Meacher, Folkestone; J. Owen, Penarth; E. S. Payne, Bromley; F. A. Pearce, Willesden Green, N.W.; P. Peebles, Northfield, Albury, near Guildford; S. L. Porter, Hampstead, N.W.; S. H. Potter, Edgbaston, Birmingham; C. H. Price, Camden Town, N.W.; T. R. Ransom, Balham, S.W.; C. O. Rawstron, Lancaster; C. F. Redfern, Northfield, Worcestershire; R. G. G. Reed, Croydon; J. Rendell, Newton Abbott, Devon; M. C. Riddett, Ryde, Isle of Wight; S. L. Sandell, Bromley; W. H. Sanday, Chesham; R. Seale, Maidstone; S. Searle, Ealing, W.; J. A. Smith, Knutsford, Cheshire; G. F. Stone, Hampstead, N.W.; F. V. Tait, Chester; E. F. Taylor, jun., Lyonsdown, New Barnet; F. T. Terry, Streatham, S.W.; A. Timbrell, Sheffield; A. H. Tyack, Manchester; H. C. Waterfield, Bayswater, W.; P. J. Westwood, Grays, Essex; W. F. Wilkins, Croydon; A. C. Williams, Witchampton, Wimborne, Dorset; E. B. F. Wright, Leek Wooton, Warwick. *Ireland.*—G. F. Crozier, Carrickbrennan, Monkstown, co. Dublin; H. E. Kincaid, Dublin; D. R. O'Brien, Charleville, co. Cork; H. Waring, Waringstown, co. Down.

NATIONAL ASSOCIATION OF MASTER BUILDERS.

THE annual meeting of this Association was held in London on the 29th ult., at the rooms of the Institute of Builders, 31, Bedford-street, W.C., Alderman John Bowen, J.P., presiding.

Representatives were present from most of the large towns, including Birmingham, Bradford, Bristol, Cambridge, Derby, Hull, Leeds, Liverpool, London, Manchester, Nottingham, Wolverhampton, &c.

The Treasurer having remarked upon the very satisfactory financial position of the Association, Mr. Thomas F. Rider (London) was elected



President for the ensuing year. A vote of thanks was accorded to the Past-President for his services during his term of office. Various matters of interest to the trade were discussed, and the proceedings terminated with a vote of thanks to the chairman.

In the evening the members of the Council were entertained by the Central Association of Master Builders of London at dinner at the Grand Hotel, the President, Mr. Geo. H. Trollope, being in the chair. On the following day the visitors went over the Waterloo and City Railway at the invitation of Messrs. John Mowlem & Co., who are carrying out the contract.

THE SANITARY INSPECTORS' ASSOCIATION.

AT the monthly general meeting of this Association, held on the 1st inst. at Carpenters' Hall, London Wall, with Mr. H. Thomas (Chairman of Council) in the chair, a paper was read by Mr. J. F. Skinner, Chief Sanitary Inspector, Brighton Corporation, on "Difficulties met with by the Sanitary Inspector in the execution of his Duties." The first class of difficulties referred to were those encountered in carrying out the regulations against overcrowding. The provincial inspector could only visit houses believed to be overcrowded at hours when the majority of the inmates were absent at work, viz., between 9 a.m. and 6 p.m., and as no admission of any inmate could be used as evidence against the occupier of a house known to be overcrowded, it was almost impossible to get a conviction, or bring to bear any remedial action. The evil of overcrowding was by no means limited to the great centres of population. The exorbitant rents demanded for small houses suitable to the working-classes in the provincial towns, and even villages, rendered it almost impossible for a working man to have a house to himself. The speculative builder, and the purchasers for resale of houses, raised the rents as they passed from hand to hand to such an extent, that houses only fit for a single family had to be shared by two, three, or four families, who divided the rent between them. It was also very difficult to prevent more buildings being crowded upon certain sites than the law allowed. The inspector was constantly finding buildings of a more or less temporary character being erected in the gardens and interior courts of houses occupied by working-men, which he had no power to remove unless he could prove that they had been constructed within the period of six months. Unless the number of inspectors was very greatly increased it would not be possible to detect the building of these illicit structures in useful time. Another class of difficulties presented themselves when they attempted to carry out the provisions for supervising dairies, farms, and milk-shops. The sanitary arrangements on many dairy-farms were no doubt admirable, but there were others in which sanitation was very greatly neglected. It was desirable to adopt some form of co-operation between the inspectors in the towns where the milk was sold and the inspectors charged with the supervision of the dairy-farms where it was produced in order that a local authority, when advised of the prevalence of insanitary conditions on any farm, might prohibit the sale of milk from that farm until the sanitary defects had been remedied. The lecturer strongly urged inspectors of all districts, whether of town or country, to work harmoniously together, not merely with the object of securing the public health in their own districts, but with a view to the general advantage.

After a vote of thanks had been accorded, on the proposal of Mr. Dee (Westminster), seconded by Mr. Young (Battersea), and supported by Mr. Cockburn (Bermondsey) and other members, Mr. Skinner briefly replied.

The proceedings closed with the usual conference, the leading questions discussed being the compulsory testing of drains by the water test, and the proposed Parliamentary Bill for establishing a scheme of pensions for Sanitary Inspectors.

COMPETITIONS.

SCHOOL, CAMELFORD, CORNWALL.—Architects were recently invited by the Governors of Sir James Smith's School at Camelford, Cornwall, to send in designs for a school-house. The drawings, prepared by Messrs. Kerley & Ellis, of Exmouth, Devon, have been selected by the Governors as being the best submitted, and the architects have received instructions to prepare the necessary working drawings and specifications and to superintend the work, which will be carried out forthwith.

WEYMOUTH HOTEL.—The assessor in this competition, Mr. G. R. Crickmay, of Westminster, has placed first the plans under motto of "Coolgardie," which were sent in by Mr. C. Orlando Law and Mr. Robt. Angell, joint architects, of Dacre House, Arundel-street, Strand, W.C.; second, "Maltese Cross," by Messrs. Pennington & Sons, Hastings House, Norfolk-street, W.C.; third, "Distant Shore," by Mr. E. A. Landsdowne, Metropolitan Bank Chambers, Newport, Monmouthshire.

CORPORATION LODGING-HOUSE, ABERDEEN.—The Housing of the Working-classes Act, 1890, having been adopted by the Aberdeen Town Council, a Corporation lodging-house is to be erected in East North-street, in the east-end of the city. The site has cost 3,400*l*. The Lodging-Houses Committee has been authorised to invite competitive designs for the building, to adjust the conditions of competition, and to appoint an assessor. The author of the design placed first in the order of merit is to receive a premium of fifty guineas, and the author of the design placed second a premium of twenty-five guineas. In the event of the Council resolving to proceed with the work, and adopting the design placed first in the order of merit, the premium in that case to merge in a commission of 5 per cent.

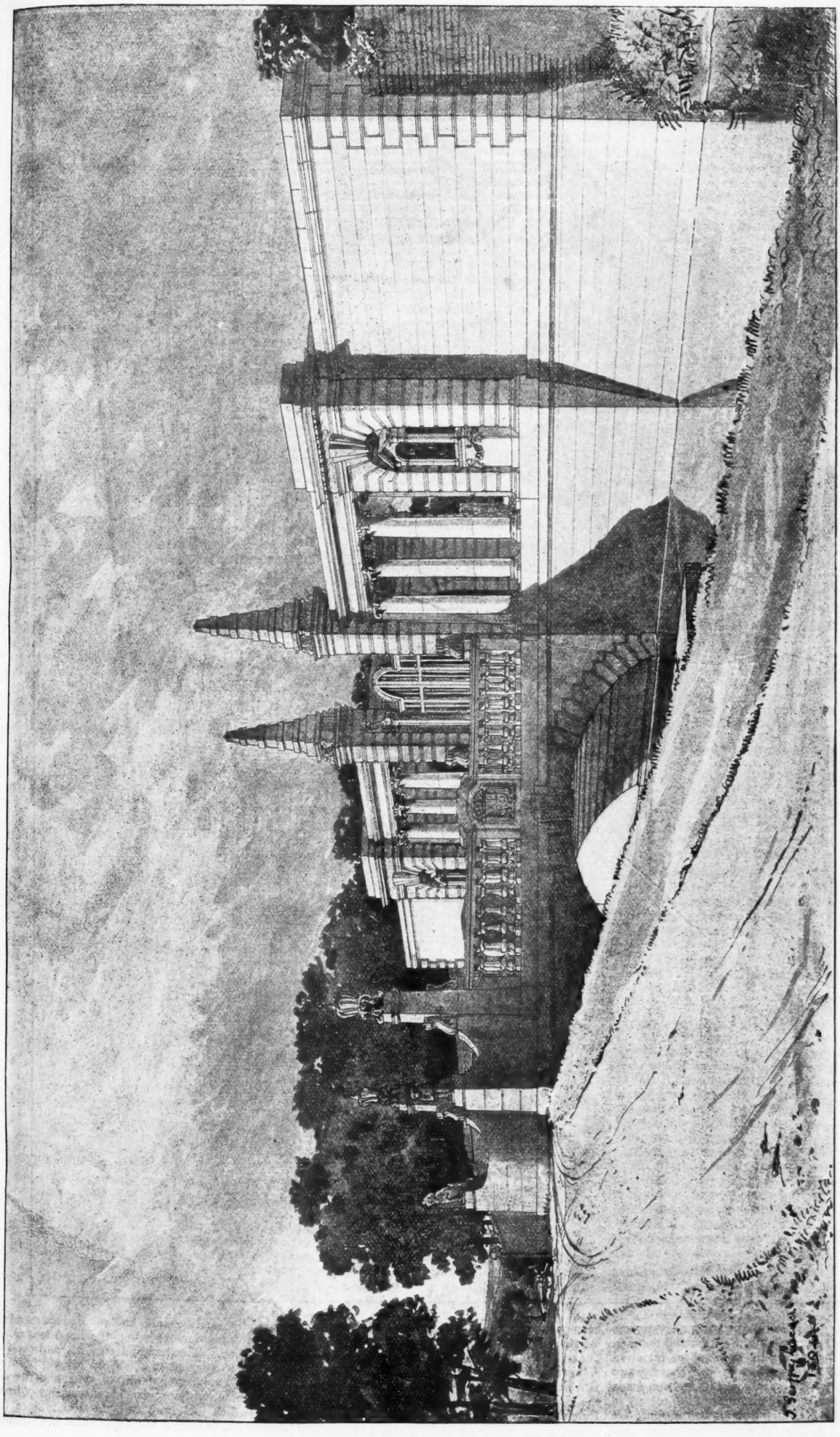
ENTRANCE TO A COUNTRY MANSION.

THIS design for an entrance to a large country mansion, by Mr. J. Geoffry Lucas, was awarded the Architectural Association Medal in 1894. We give the perspective view and the plan.

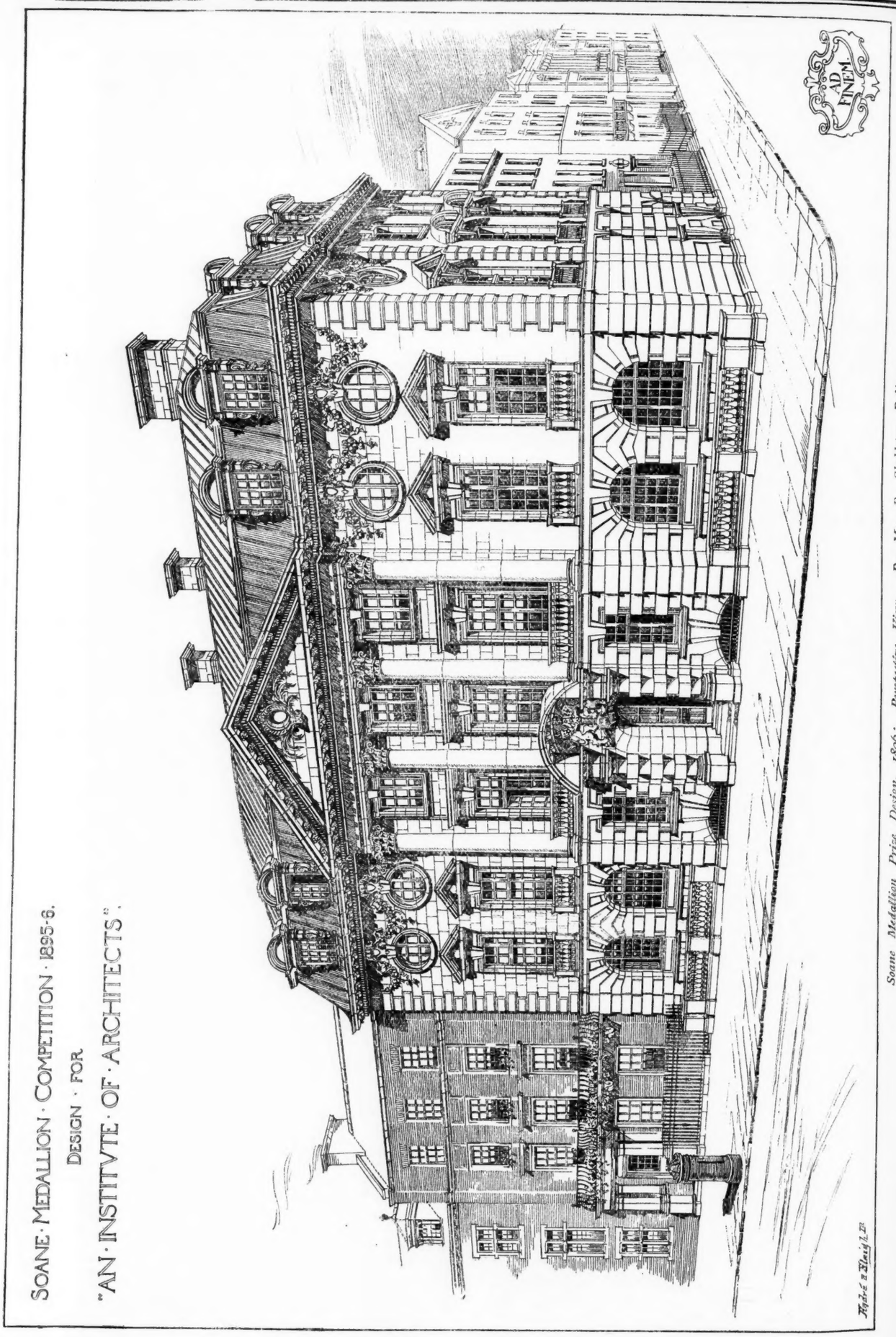
The author has availed himself of the possible though not very usual incident of an entry across a stream running by the side of the high road, to add the picturesque element of a bridge giving access to the gate. The lodge designs are treated with a good deal of originality; and though it may be objected that their entirely symmetrical treatment is not quite in accordance with the different uses of the two buildings as shown by the plans, it must be admitted that it is hardly possible to treat an entrance-gate to a large mansion, in Renaissance style, on any other principle. A certain element of stateliness is desired, and this can hardly be obtained by an irregular treatment.

ENGINEERING SOCIETIES.

SOCIETY OF ENGINEERS.—The first ordinary meeting of the Society of Engineers for the present year was held on Monday at the Royal United Service Institution, Whitehall. Mr. Wm. George Peirce, the President for 1895, occupied the chair, and presented the premiums awarded for papers read during that year, viz.:—The President's Gold Medal to Mr. R. E. Middleton for his paper on "The Relative Value of Percolation Gauges." The "Bessemer Premium" to Mr. Thomas Andrews, F.R.S., for his paper on "The Effect of Strain on Railway Axles and the Minimum Flexion Resistance Point in Axles." The "Rawlinson Premium" to Mr. D. B. Butler for his paper on "Portland Cement: some Points in its Testing, Uses, and Abuses;" and a "Society's Premium" to Mr. W. T. Sugg for his paper on "Ventilation and Warming."—Mr. Peirce introduced the President for the present year, Mr. Samuel Herbert Cox, to the meeting, and retired from the chair, receiving a



ENTRANCE TO A COUNTRY MANSION. DESIGNED BY MR. J. G. LUCAS.
(Architectural Association Medal, 1894.)



Soane Medallion Prize Design, 1896: Perspective View. By Mr. R. Shekleton Balfour.
(The geometrical elevations and plans are given in the lithograph illustrations to this issue.)

hearty and unanimous vote of thanks for his services during the past year.—Mr. Cox, having thanked the members for electing him as President, reviewed briefly the present position of the Society and alluded to the arrangements which had been made for holding the ordinary meetings of the society in the theatre of the United Service Institution. He then referred to the vacation visits which had been paid to the Waterloo and City Railway Works; the New City of London Brewery; the Outer Harbour Extension Works at Dover; the Admiralty Pier and Inner Harbour at Dover; the Dover Electricity Supply Company's Station, and the School of Gunnery and New Experimental Ranges at Shoeburyness; and expressed the thanks of the Society to those gentlemen who had so kindly acted as guides and afforded the members every information regarding the important works in question. The remainder of his address was devoted to a review of the Gold Mining Industry from an engineering point of view and the developments and improvements in systems of treatment which had been brought about since the discoveries of gold in large quantities in California

in 1848. The address was concluded by some remarks regarding the conditions under which mines were worked, and the necessity of thoroughly studying the conditions which prevail before deciding what working capital was necessary to bring a mine to a successful issue.

Illustrations.

THE SOUTH TRANSEPT, SOISSONS CATHEDRAL.

THE Cathedral of Soissons is a simple and beautiful church dating from the first period of Gothic art, in the North of France. The illustration, published this week, is taken from the south aisle of the nave, looking towards the chapel on the east side of the interesting semi-circular south transept of the Cathedral. Mons. Edouard Corroyer, in his book on "Gothic Architecture," says that the plan of the transept and the two-storied aisle shown in the view was suggested by the Cathedral of Noyon; and further, that it is the first instance of the use of flying buttresses in Gothic architecture, a method of building brought to such culmination in the cathedrals of Reims and of Beauvois. GERALD HORSLEY.

SOANE MEDALLION DESIGN, 1895-96: FOR AN INSTITUTE OF ARCHITECTS.

THE conditions drawn up by the Committee of the Royal Institute of British Architects, for the Soane Medallion Competition, 1895-96, alone limited competitors in regard to the area of the site and to the floor space of certain rooms. Those, therefore, who entered the competition found the greatest scope for the arrangement of their plans. As a consequence the diversity of position assigned to the various apartments indicates how wide is the divergence of opinion as to what constitutes the most convenient disposition in the minds of the seventeen competitors.

The author of this design believed considerable importance to be attached to the fact that, as the exhibition galleries asked for were intended for public use, it was essential that they should be situated in such a manner as to secure for the members of the Institute a freedom from those encroachments which in all probability would result if the galleries were placed on an upper floor, where facilities for adequate lighting were to be more readily obtained.

The building comprises on the ground floor the exhibition galleries and the offices of the Institute; on the first floor, meeting-room, library, and council-room; on the second floor, committee-rooms, and Council dining-room with kitchen, &c., attached; and on the top floor the examination-room, candidates' waiting-room, and the secretary's residence, while in the basement is plenty of storage space and the hall-porter's residence.

A purely national style would doubtless be most appropriate for the treatment of the elevations, but in that architecture is nowadays more or less a cosmopolitan art, admitting no such limitations as those of territorial boundary, a phase of the "Classical Revival" was in this case adopted, a type which has always combined in it the essentials of simplicity, dignity, and breadth, and which, moreover, has proved itself capable of outliving the transient approval of fickle fashion.

R. SHEKLETON BALFOUR, A.R.I.B.A.

Soane Medallion Prize Design, 1896: Perspective View. By Mr. R. Shekleton Balfour. (The geometrical elevations and plans are given in the lithograph illustrations to this issue.)

ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION—DISCUSSION SECTION.—The seventh meeting of the Session of the Discussion Section of the Architectural Association was held at 56, Great Marlborough-street, on Wednesday, Mr. Herbert A. Satchell, the Chairman of the Section, presiding. The paper, by Mr. R. Henry Weymouth, was on "Electric Lighting for Domestic Purposes," and was illustrated by a large collection of fittings, &c., kindly lent by Mr. Thos. O. Belshaw, who attended the meeting as Special Visitor. The author dealt with the subject from the standpoint of the architect, describing the points demanding attention in installations of comparatively small size. Switches and cut-outs, wall-plugs, roses and lamps, their uses and arrangement, were described. The requirements governing the arrangement of dynamos and accumulators were explained, special attention being here drawn to the need for perfect ventilation of the accumulator room. Fire office demands and notes as to cost concluded the paper. The discussion was opened by Mr. Pywell, who, while agreeing with the author in his opinion that the architect should have a knowledge of the leading principles of electric lighting, thought it unreasonable to expect that the architect should possess any very deep scientific knowledge of the subject. Messrs. Greenop, Leaning, Davis, Stockdale, and Garbutt having spoken, the Chairman dealt with several points which his own experience had called his attention to, and submitted several questions to the Special Visitor. Mr. Max Clarke related several instances from his own experience which showed how necessary to the architect a knowledge of this subject had now become. He also pointed out that in St. Pancras, where a 200 volt current was taken into the houses, double-pole cut-outs were not allowed because of their danger. Mr. Belshaw, the Special Visitor, then explained the many points which had been raised. He said that the 200 volt current in houses caused much additional expense to the consumer, as the high voltage lamps took about six volts per candle-power as against the 4½ volts of the fifty or 100 volt lamps; the life of the lamps being also shorter. At the conclusion of the meeting, which was of such interest as to keep the members until nearly eleven o'clock, votes of thanks were passed to the author and to Mr. Belshaw for their valuable contributions to the work of the section.

THE GLASGOW ARCHITECTURAL ASSOCIATION.—The ordinary monthly meeting of this Association was held in the rooms on Tuesday evening, Mr. A. N. Paterson, M.A., in the chair, when Mr. George Gunn, of Ayr, read a paper on "A Fortnight in West Somerset," being a tour he took last summer, having gained the Association Travelling Scholarship. The paper was a description of the places he visited, chief among which being Taunton, Minehead, Blue Anchor, Dunster, Wells, and Croscombe; not the least interesting feature of the architecture of Somerset being its even distribution of its interest. There is hardly a portion of the county which will not well repay the architect for visiting. Mr. Gunn advised architectural students to make Blue Anchor their centre, as it is extremely rich in things architectural. A large collection of architectural sketches made by Mr. Gunn were shown on the walls, and also photographs, which remain for a fortnight. The paper was also illustrated by lantern-slides, and at the close Mr. Gunn was awarded a hearty vote of thanks from a large audience.

EDINBURGH ARCHITECTURAL SOCIETY.—The Edinburgh Architectural Association visited Bruntsfield School, Edinburgh, on the 1st inst. After inspecting the various departments, Dr. Rowand Anderson proposed a vote of thanks to Mr. Robert Wilson, the architect of the school, who acted as guide. Mr. Wilson acknowledged the compliment.

ARCHITECTURAL SECTION, GLASGOW PHILOSOPHICAL SOCIETY.—The Architectural Section of the Philosophical Society of Glasgow held a meeting on the 3rd inst. in the Society's rooms, Bath-street. The object of the meeting was to listen to a paper by Mr. Charles Gourlay, Professor of architecture in the Technical College, on "The Teaching of Architecture in the College." Mr. T. L. Watson presided. Mr. Gourlay prefaced his lecture with some general remarks. Architecture he defined to be the art of giving to a building all the perfection which could be bestowed upon it. This perfection was attained when a building was perfectly suitable, perfectly stable, and perfectly beautiful: and no building was worthy of the name of architecture which did not aim at perfection all along these three lines.

GLASGOW INSTITUTE OF ARCHITECTS.—A quarterly general meeting of this Institute was held within the new rooms, 187, Pitt-street, on the 30th ult. The President made appropriate reference to the death of Lord Leighton, and thereafter a resolution was passed and ordered to be minuted expressing the great loss sustained in the death of Lord Leighton, one of the Glasgow Institute's honorary members. It was agreed to hold an exhibition of the prize drawings of the Royal Institute of British Architects in the rooms, 187, Pitt-street, the dates to be afterwards announced.

DUNDEE INSTITUTE OF ARCHITECTURE, SCIENCE, AND ART.—On the 30th ult. a lecture, entitled "Locks and Keys, Ancient and Modern," was delivered by Mr. Harry W. Chubb, London, under the auspices of this Society, in the Young Men's Christian Association Hall. Mr. Leslie Ower, Vice-President of the Institute, presided. The lecturer, in the course of his remarks, said that artistically locks and keys followed the prevailing architectural styles, those of the Francoise period being perhaps the most beautiful. The present form of lock was shown by limelight, and the mechanism of each part explained. A large number of limelight views were shown illustrative of the processes of manufacturing safes, besides other views of symbolic ornamentation on doors, and the intricate action of the workings of bolts in safes now in use in most of the leading banks in the country. A vote of thanks to Mr. Chubb was accorded at the close.

MANCHESTER SOCIETY OF ARCHITECTS (INCORPORATED).—A lecture was delivered on the 4th inst. before this Society on "American Architecture and Architects," by Mr. John B. Gass, of Bolton. Mr. R. Knill-Freeman was in the chair, and in introducing Mr. Gass he referred to that gentleman's special knowledge of things American obtained when he visited that country, officially accredited by the Institute, after his election as Godwin Bursar and Medallist. In his opening remarks the lecturer referred to the wonderful progress made by the United States during the last decade. The sources of American architecture are composite, but in its growth it is representative of the people. It has passed through many phases to its latest and best period of to-day. The necessity for architectural training has been fully recognised, and is now well provided for. Mr. Gass met nearly all the leading architects of the East, and described some of their characteristics and work. The lecture was illustrated by a number of drawings and photographs of works designed by Hunt and Richardson, lent by the Council of the Royal Institute of British Architects.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday at the County Hall, Spring-gardens, Sir Arthur Arnold, Chairman, presiding.

Cost of Expert Evidence.—The Finance Committee reported as follows:—

"In our report, presented on January 21, we called the attention of the Council to the supplemental estimate for 650*l.* submitted by the Public Health and Housing Committee for expenses in connexion with the inquiry instituted by the Local Government Board as to the amount of the water flush allowed to water-closet cisterns in the east of London. The estimate was then withdrawn, and, having further considered the subject and the accounts of the several witnesses who attended the inquiry and gave evidence on behalf of the Council, we are of opinion that the charges made are high. The Public Health and Housing Committee, however, had the advice of the officers before passing the account, and we have therefore included it in the list of proposed payments."

Mr. Campbell referred in strong terms to the cost of the inquiry, and in particular to the charges made by the experts who were examined. He moved to reduce the fee of 75*l.* to be paid to Dr. Corfield to 40 guineas.

Mr. Wetenhall seconded the motion.

On the suggestion of Colonel Rotton it was decided to postpone the matter for a week in order to elicit the facts.

Should Councillors Wear their Hats?—The General Purposes Committee reported in opposition to a suggestion that the Standing Orders should be so altered as to permit members to wear their hats during the sittings of the Council.

Earl Russell moved to refer the paragraph back, on the ground that the Committee had not given the matter serious consideration. In that part of the Chamber where he sat there was a strong downward draught.

During the discussion which followed,

Dr. Forman said it was largely a matter of ventilation. He was responsible for the air-fans which had been placed in the windows, and when the improved ventilation was completed he believed the draughts would cease.

The amendment was defeated, and the Committee's recommendation was agreed to.

Conditions of Building Contract.—The General Purposes Committee submitted a long report, which we print elsewhere, on certain amendments which the Institute of Builders desired to have made in the Council's forms of contract. Part I. of the third schedule to the form of contract gives, in accordance with the Standing Orders of the Council, the rates of wages to be paid and the hours of labour to be observed with regard to all work executed within a radius of twenty miles measured in a straight line from Charing Cross. The radius of twelve miles suggested by the

Institute of Builders is the limit recognised by the master builders and the trades unions.

The Committee, however, recommended that no alteration be made.

Mr. W. Emden moved as an amendment that a limit of twelve be fixed, instead of twenty. As the trades unions and the masters were in agreement that twelve miles should be the radius, he did not see why the Council should make a radius of twenty miles.

Mr. Reed seconded.

Mr. Roberts said that the amendment should be adopted by the Council on principle, because while they were willing to pay the trades union rates of wages, there was no occasion to go further than the radius agreed upon by the workmen and employers themselves.

Mr. John Burns, M.P., said if they reduced the radius they would have more disputes between employers and employed. A change in the radius would lead to general disputes.

A long discussion followed, Sir John Hutton and Mr. E. White supporting the amendment, and Messrs. Goodman, Crooks, and Strong supporting the recommendation of the Committee. On a show of hands, there voted, for the amendment forty ; against, forty-two. The Council then divided, when there voted for the amendment forty-eight ; against, sixty-one.

Mr. Branch then moved, and Colonel Ford seconded, that the twelve miles radius be agreed to, except in some special cases, such as the building of asylums.

The amendment having been defeated, the recommendation of the committee was agreed to.

The next paragraph in the report dealt with the clause in the Council's contract fixing the rate of pay and the hours of labour for work outside the twenty-mile radius. The Institute of Builders had asked the Committee to alter the words at the end of the clause providing that the wages and hours should be those "recognised and in practice obtained at the date of the tender by the several trades unions of the district in which the work is to be done," so as to read "recognised and in practice obtained at the date of the tender by the several trades of the district in which the work is done."

The Committee recommended that no alteration be made, and the recommendation was adopted.

Recommendation *c* in the Committee's report was also agreed to. On Recommendation *d* a lengthy discussion took place. Mr. Westacott moved to omit the provision requiring a contractor to pay a penalty of 5s. per hour for every hour that any workman is employed beyond the stated maximum.

Mr. Beachcroft seconded the amendment. In his opinion the condition was tyrannical.

Mr. Burns spoke in defence of the clause. In this respect the Council was only following the example of many large towns, including Birmingham, Brighton, Hull, and York.

The amendment, on a division, was defeated, fifty voting for it and sixty against.

Mr. C. Chapman then moved to omit the clause compelling the contractor, under a penalty of 10*l*., to furnish a statutory declaration that all the entries in his books relating to the contract were correct.

Sir H. Poland seconded the amendment.

Mr. E. White said the clause was a most iniquitious one, and would drive away respectable builders from tendering to the Council.

Mr. Burns said he hoped the Council would maintain the clause, and not deprive themselves of the power to bring contractors to book by administering a statutory declaration.

On a division, there voted for the amendment 62 ; against, 53.

Section 5 will therefore be withdrawn.

Recommendation *d* of the Committee, that Sub-clauses 2, 3, 5, and 6 do remain as at present, was, as amended, then agreed to.

On Recommendation *e* Mr. E. White moved, and Major Probyn seconded, that the penalty should be omitted.

The amendment was defeated on a division, 51 voting for, and 62 against.

The recommendation of the Committee was then agreed to.

On the Arbitration Clause the Earl of Onslow moved an amendment to the effect that such arbitration should be immediately proceeded with on the dispute arising. He pointed out that, under the proposed clause, a contractor might have to wait a long time before he received payment for work done. This would emphasise the already marked difficulty of obtaining competing tenders. Hitherto the Council had regarded itself too much as the champion of the Labour Party, and had not sufficiently regarded the interests of the ratepayers and the keeping down of the rates. The result of the policy of the Council had been that they had not that competition among contractors which the ratepayers had a right to expect. He hoped they would not go further and make the contractor stand out of his money till disputes between him and the architect were settled.

Mr. Ellice Clarke seconded.

On the suggestion of Mr. Roberts, the discussion of the clause was postponed.

Recommendation *h* was agreed to without discussion.

The Prosposed New Asylum.—Mr. M'Dougall brought up the adjourned report of the Asylums Committee, which contained the recommendation that the Council should authorise the Committee to obtain a site and to proceed with the erection of a seventh asylum.

Mr. M'Dougall agreed to alter the recommendation to the effect that the Council should obtain a site, and proceed with the plans and the estimates for a seventh asylum.

Mr. Alderman Beachcroft thought this practically committed the Council to the erection of a seventh asylum, and, on the ground that more information was required, he moved that the Committee should be instructed only to acquire a site.

This was rejected, and the recommendation of the Council, as altered, was adopted.

Southern Approaches, Blackwall Tunnel.—On the recommendation of the Bridges Committee, it was agreed :—

"That, subject to an estimate being submitted to the Council by the Finance Committee as required by the statute, the drawings, specification, and bill of quantities for completing the portion of the southern approach roads to the Blackwall Tunnel extending from the junction of the two roads to Wheatman-street, and the road in front of Idenden Cottages be approved ; that the work be carried out at an estimated cost of 10,028*l*. by the Council, without the intervention of a contractor, and that the drawings, specification, and bill of quantities be referred to the Works Committee for that purpose ; but that in the event of the Works Committee not being prepared to carry out the work at the estimated sum, advertisements be issued inviting tenders."

The Council having transacted other business adjourned soon after 7 o'clock.

CONDITIONS OF BUILDING CONTRACTS AND THE LONDON COUNTY COUNCIL.

THE consideration of the following paragraph of the Report of the General Purposes Committee of the London County Council occupied the greater part of the sitting of the Council on Tuesday. The recommendations of the Committee were agreed to with one exception. A short report of the discussion which took place on the Committee's recommendations will be found on another page :—

'In July last, the Public Health and Housing Committee imformed us that Messrs. Holloway Brothers, when tendering for the erection of working-class dwellings on the Boundary-street area, had raised objections to the arbitration clause in the form of contract, but had subsequently agreed to the re-insertion of the clause upon the understanding that in any future contract they must ask for a revised clause. Messrs. Holloway further expressed the hope that the Council would consider the matter and receive a deputation from the Institute of Builders with reference to this and other clauses in the form of contract. The Fire Brigade Committee also, in a report to the Council on July 9 last, stated that a similar objection had been raised by the same firm in connexion with a tender for the erection of a fire station. The question of the conditions of building contracts has also been brought before us by the Asylums Committee. Mr. Hine, the Asylums Architect, commenting upon the Council's present form of contract, expressed the opinion "that master-builders would regard the contract as bristling with vexatious conditions and penalties against themselves, and the result will be that they will either decline to tender for the work, or, if they do tender, it will be at a price which will fully compensate them for any losses or annoyances that may arise out of such contract, and the tenders will in consequence be practically prohibitive." We considered it only right to hear the views of the Institute of Builders, and, a deputation having attended, the Institute was requested to send in a written statement of the amendments suggested. These proposed amendments have been carefully considered by a sub-committee. The principal objection of the builders relates, as stated above, to the arbitration clause (XXVIII.), but the Institute of Builders, when appearing before the Committee, took the opportunity of objecting to other clauses. Some of these are affected by the arbitration clause, and others mainly relate to the wages and hours of labour recognised by the trades unions of the district in which the work is to be done, and to the payment of penalties for infringement of the stipulations with regard to such rates of wages and hours of labour. Other suggestions are of a verbal character, and, where we think they should be agreed to, are shown, together with the following proposed amendments, on the revised copy of the conditions of building contracts which we submit herewith. The more important of the amendments suggested by the Institute of Builders we now deal with *seriatim*.

Works executed within twenty miles of Charing Cross.

(1.)—Part I. of the third schedule to the form of contract gives, in accordance with the standing orders of the Council, the rates of wages to be paid and the hours of labour to be observed with regard to all work executed within a radius of twenty miles measured in a straight line from Charing Cross. The radius of twenty miles was, we understand, fixed by the Council on the ground that such a limit would include all places at which the Council might carry out works, as, for instance, sites for asylums. The radius of twelve miles suggested by the Institute is the limit recognised by the master builders and the trades unions. We think it inexpedient to alter the radius and we recommend—

(*a*) That no alteration he made.

Rates of Pay and Hours of Labour.

(2.)—The fourth clause of the instructions to tender is as follows—"As regards all works to be done outside the radius of twenty miles the tenderer must before delivering his tender complete the list of rates of wages, wages for overtime, and hours of labour forming Part II. of the said third schedule, by specifying the place or places outside the radius aforesaid at which any work is proposed to be done, and by filling into the proper columns against each trade specified the rates of wages, wages for overtime, and hours of labour proposed to be paid and observed by the tenderer, which must be those recognised and in practice obtained at the date of the tender by the several trades unions of the district in which the work is to be done."

The Institute of Builders suggest that the last two lines should be so altered as to read "recognised and in practice obtained at the date of the tender by the several trades of the district in which the work is done." We think it inexpedient that any alteration should be made in the Council's Standing Order in this direction, and we recommend—

(*b*) That no alteration be made.

(3.)—The Institute of Builders suggests that a note should be added to the recital of the contract and in Sub-clause 1 of Clause XXV., to the effect that the stipulations to be observed by the contractor with regard to the payment of wages and hours of labour are not to "operate to prevent the employment by the contractor on the works of his legally-bound apprentices aud articled improvers." We understand that an articled improver is a man who, being too old to be apprenticed, and having in some way acquired a knowledge of a trade, desires to complete his training so as to become an efficient workman, and that the "articled improver" does not include ordinary inferior workmen or workmen infirm from age. We think that the suggestion of the Institute might to some extent be adopted, and we have, therefore, added the following words, "except a reasonable number of legally-bound apprentices." We recommend—

(*c*) That this addition be approved.

(4.)—The alterations suggested in Clause XXV. are so important that it is necessary to quote the whole of the clause, which, it should be noted, is a standing order of the Council. It is as follows, the words proposed to be *added* being printed in italics, and those proposed to be *left out* being in brackets :—

XXV. The contractor shall at all times during the continuance of this contract abide by, perform, observe, fulfil, and keep all and singular the stipulations following, that is to say :—

(1.) The contractor shall pay all workmen employed by him in and about the execution of this contract or any part thereof, *save and except his legally-bound apprentices and articled improvers*, wages, and wages for overtime respectively, at rates not less than the rates stated in the third schedule hereto ; and for each and every breach by the contractor of this stipulation, and notwithstanding the condonation of any prior or other breach, the contractor shall, on demand, pay to the Council as liquidated damages, and not as a penalty, the sum of 5*l*.

(2.) The contractor shall observe and cause to be observed by *all* such workmen hours of labour not greater than the hours of labour stated in the said third schedule [and for each and every breach by the contractor of this stipulation, and notwithstanding the condonation of any prior or other breach, the contractor shall on demand pay to the Council as liquidated damages, and not as a penalty, for each day on which any such breach shall be committed, and for each workman in respect to whom it shall be committed, the sum of 5s. per hour for every hour during which, on each day, each such workman shall be employed by the contractor beyond the

maximum number of hours stated in the said third schedule], provided that this stipulation shall not be construed to prohibit overtime, if such overtime be in accordance with the rules of the trade [unions] concerned.

[(3.) The contractor shall at all times during the continuance of this contract display and keep displayed upon the site of the works and in every factory, workshop or place occupied or used by the contractor in or about the execution of this contract, in a position in which the same may be easily read by all workmen employed by the contractor in or about the execution of this contract, a clearly printed or written copy of the said third schedule hereto, and for each and every breach by the contractor of this stipulation, and notwithstanding the condonation of any prior or other breach, the contractor shall, on demand, pay to the Council as liquidated damages, and not as a penalty, for every day during which such breach shall be or continue, the sum of 1*l.*]

[(4.) The contractor shall, to the satisfaction of the Council, provide and keep proper books, in which shall be correctly and promptly entered from time to time the names of, and the wages paid to, and the hours of labour observed by, all such workmen as aforesaid, and shall from time to time when required produce such books to any person or persons, whether a member or members of the Council or not, appointed by the Council, or by any Committee of the Council to whom the matter or business out of which this contract arises may have been or may be referred to inspect the same, and allow such person or persons to take copies of, or extracts from, such books, or any of them; and for each and every breach by the contractor of this stipulation, and notwithstanding the condonation of any other or prior breach, the contractor shall, on demand, pay to the Council as liquidated damages, and not as a penalty, the sum of 3*l.*]

[(5.) The contractor shall from time to time, if and whenever required by the Council so to do, and within seven days after such requisition, make and deliver to the Council a statutory declaration, stating that all the entries in such books as aforesaid are correct, or in the case of any inaccuracy therein setting forth the details of such inaccuracy, and that all entries required by stipulation (4) to be made in such books, have been made therein to the date of such declaration, and for each and every breach by the contractor of this stipulation, the contractor shall, on demand, pay to the Council as liquidated damages, and not as a penalty, the sum of 10*l.*].

[(6.) Should any workman in the employment of the contractor be not paid the scheduled rate of wages, the Council may pay to any workman or workmen who may have been underpaid the difference between the amount of wages which he may have been paid by the contractor and the amount which he would have been paid if the stipulation as to wages had been observed, and may deduct from any moneys due or to become due under the contract the amount of the said difference so paid to such workman or workmen.]

The only clause suggested by the Institute in substitution for the four clauses proposed to be altogether omitted is as follows:—

"*The contractor shall at any time during the continuance of this contract, when called upon so to do, produce to the Architect his time and wages-sheets, books, or any other necessary proof to his (the Architect's) satisfaction that the stipulations contained in this clause are being observed and complied with.*"

These stipulations have been described as unnecessarily stringent, and doubtless they have proved rather vexatious to contractors. The Sub-Committee was of opinion that some modifications might be made, and with that view, submitted an amending clause. It will be seen that the Institute of Builders desires that the imposition of penalties should be omitted. On the matter coming before us, it was represented that the London Building Trades Federation desired to be heard in support of the clause remaining in its present form. Having heard their views, we have come to the conclusion that the omissions suggested by the Institute should not be agreed to. We think, however, it would be well for Section 4 to be amended. The Sub-clause 1 has already been dealt with in Paragraph 3. We recommend:—

(*d*) That Sub-clauses 2, 3, 5, and 6 do remain as at present.

(*e*) That the following be substituted for Sub-clause 4:—

(4.) The contractor shall at any time and from time to time during the continuance of this contract, whenever called upon so to do by the clerk for the time being of the Council, produce to such officer or officers of the Council as the clerk may direct, the time and wages sheets and books of the contractor and all other evidence necessary or proper to show to the satisfaction of such officer or officers whether or not the stipulations contained in this clause have been and are being complied with, and allow such officer or officers to take copies of or extracts from such sheets, books and evidence, or any of them, as such officer or officers may deem fit; and for each and every breach by the contractor of this stipulation, and notwithstanding the condonation of any other or prior breach, the contractor shall on demand pay to the Council as liquidated damages, and not as a penalty, the sum of 3*l.*

The Arbitration Clause.

(5.) As pointed out in the first paragraph of the report, the principal objection was to this clause: the *additions* suggested are in italics, and the words proposed to be left out are in *brackets*.

XXVIII.—If any difference or dispute shall arise between *the architect or* the Council and the contractor with regard to this contract or the construction thereof, or the rights, duties, or liabilities of the contractor, or the *architect, or the* Council under this contract [or as to any materials or workmanship], or any other matter or thing, or cause of difference whatsoever arising out of or in connexion with this contract, or the execution thereof, directly or indirectly, *not being matters left to the sole decision of the architect during the progress of the works*, the same shall be referred to [the award and decision of the architect as sole arbitrator] *an arbitrator to be appointed under the provisions of the Arbitration Act, 1889*, whose decision shall be final and conclusive between the parties, and [the architect] *who* shall have power over the costs of any proceedings under this clause.

The Institute considered it unfair that one of the parties to the contract should be placed in the position of an arbitrator. We have come to the conclusion that, subject to certain exceptions as to which the architect must undoubtedly in our opinion be the sole arbitrator, the principle of an outside arbitrator might be conceded, and with that view we have prepared a draft amending Clause, and where necessary have altered other Clauses (Nos. 2, 13, 14, and 18), which deal with matters to be left to the final decision of the architect. We recommend—

(*f*) That the following amended Clauses be approved:—

In place of XIV.—The whole of the materials to be used shall be new materials, unless otherwise specified, and shall be the best of their respective kinds, and, should any materials be brought on the ground which the architect shall decide to be of an inferior description or improper to be used in the works, the same shall be removed entirely away therefrom within twenty-four hours after orders have been given by the architect; the aforesaid decisions and orders of the architect shall be final, and in case of non-compliance with any such orders the architect may cause the said inferior or improper materials to be taken away or otherwise dealt with as rubbish, without any payment or compensation to the contractor for the same, and the contractor shall, on demand, pay to the Council the expenses incurred by the Council in so doing, the amount thereof to be certified by the architect.

Arbitration Clause.

In place of XXVIII.—If at any time, and so often as the same may happen before the architect shall have given his certificate of the completion of the works under this contract or before the period for maintenance of such works by the contractor shall have expired, any difference or dispute shall arise between the Council or the architect and the contractor with regard to the construction of this contract, or as to the rights, duties, and liabilities of the Council or the contractor under this contract, or as to the due performance of the contract by the contractor, or as to any matter or thing arising out of or in connexion with this contract, the same shall (except in those cases where under any clause of this contract it is otherwise provided, or the decision, judgment, requisition, certificate, or order of the architect is to be final), be referred to the architect as sole arbitrator, and the contractor shall carry out and complete the works and maintenance in accordance with the award of the architect, which, subject to the proviso hereinafter contained, shall be final and conclusive between the parties hereto, provided always that if the contractor shall be dissatisfied with any such award of the architect as aforesaid, and shall within days after the date thereof give notice in writing to the Council of such dissatisfaction, stating the grounds thereof, and requiring that the dispute or difference, the subject-matter of such award, shall be referred to the decision of an independent arbitrator. Then, after the architect shall have given his certificate in writing of the completion of the works under this contract and the period for maintenance shall have expired, all disputes and differences, the subject matters of awards by the architect in respect whereof the contractor shall have given such notice as aforesaid within the time aforesaid, shall be referred, but so far only as the final settlement of accounts between the parties is concerned, to the award and decision of

, or, in the event of his death or inability or unwillingness to act of such architect, being a Fellow of the Royal Institute of British Architects, as on the application of either party hereto may be appointed by the President for the time being of such Institute as final arbitrator, and the award of such final arbitrator shall be final and conclusive and binding on the parties hereto, and any amounts found thereby to be payable, either by the Council to the contractor or by the contractor to the Council, shall be payable and be paid within twenty-one days from the date of such award, and the provisions of the Arbitration Act of 1889 shall apply to any arbitration under this clause.

We recommend:—

(*g*) That the revised form of contract be approved.

(6.)—Some of the amendments recommended, if adopted, will necessitate consequential amendments in the standing order of the Council relating to wages and hours of labour. We recommend:—

(*h*) That the consequential amendments be made in the standing order referred to.

With a view to the Council being fully informed of all the alterations suggested by the Institute of Builders, there will be submitted a copy of the conditions of contract showing these alterations and indicating on what points we recommend that the suggestions of the Institute should be acceded to.'

SCHOOLS, TONG MOOR, BOLTON.—The new congregational schools, Tong Moor, Bolton, are approaching completion. Messrs. J. Gerrard & Sons, of Swinton, are the builders, and Mr. W. H. Dinsley, of Chorley, is the architect.

Correspondence.

To the Editor of THE BUILDER.

BUILDING TRADES' EXHIBITION.

SIR,—As I am daily receiving letters with reference to the Building Trades' Exhibition, which many of your readers presume will be held at the Royal Agricultural Hall in March next, I should esteem it a favour if you would kindly permit me to state, through the medium of your columns, that the Exhibition will *not* be held this year. It will be continued upon a more comprehensive basis in March, 1897. H. GREVILLE MONTGOMERY.

The Student's Column.

CARPENTRY AND JOINERY.—V.

ROOFS.

IN introducing the important subject of roofs to the student, a few general remarks as to the principles to be adhered to in their construction may be advisable, for, as Ware in his "Body of Architecture" has said, "There is no article in the whole compass of the architect's employment that is more important or more worthy of a distinct consideration than the Roof." Without going into any great depth, it is necessary to take a short glance at the strains exerted by roof timbers, in order to enable us to understand the reason and necessity for the employment of such timbers, in connexion with which the special forms bear a direct relation to the strains exerted. It is evident that flat roofs which exert no outward thrust on the walls do not require trussing in any way; in fact, their construction becomes very similar to a floor of similar span, on which "firring" is placed to give the necessary slope to the zinc or lead with which it is covered, to carry off the rain-water.

In a sloping roof, the inclination of its sides to the horizon, which is called the pitch, is regulated by the roofing material with which it is covered, and the country in which it is situated. Many investigators have gone very deeply into this subject, and a writer in the "Encyclopédie Méthodique" has divided the climates of the world into belts or bands parallel to the Equator, each of which requires a certain pitch regulated by the different roof-coverings employed, and he gives a table showing how the roofs of the great buildings of the world in each belt accord with this rule.

Tredgold, the great authority on the subject, gives the following angles of roofs for different coverings, to which the height of the roof in parts of its span is added:—

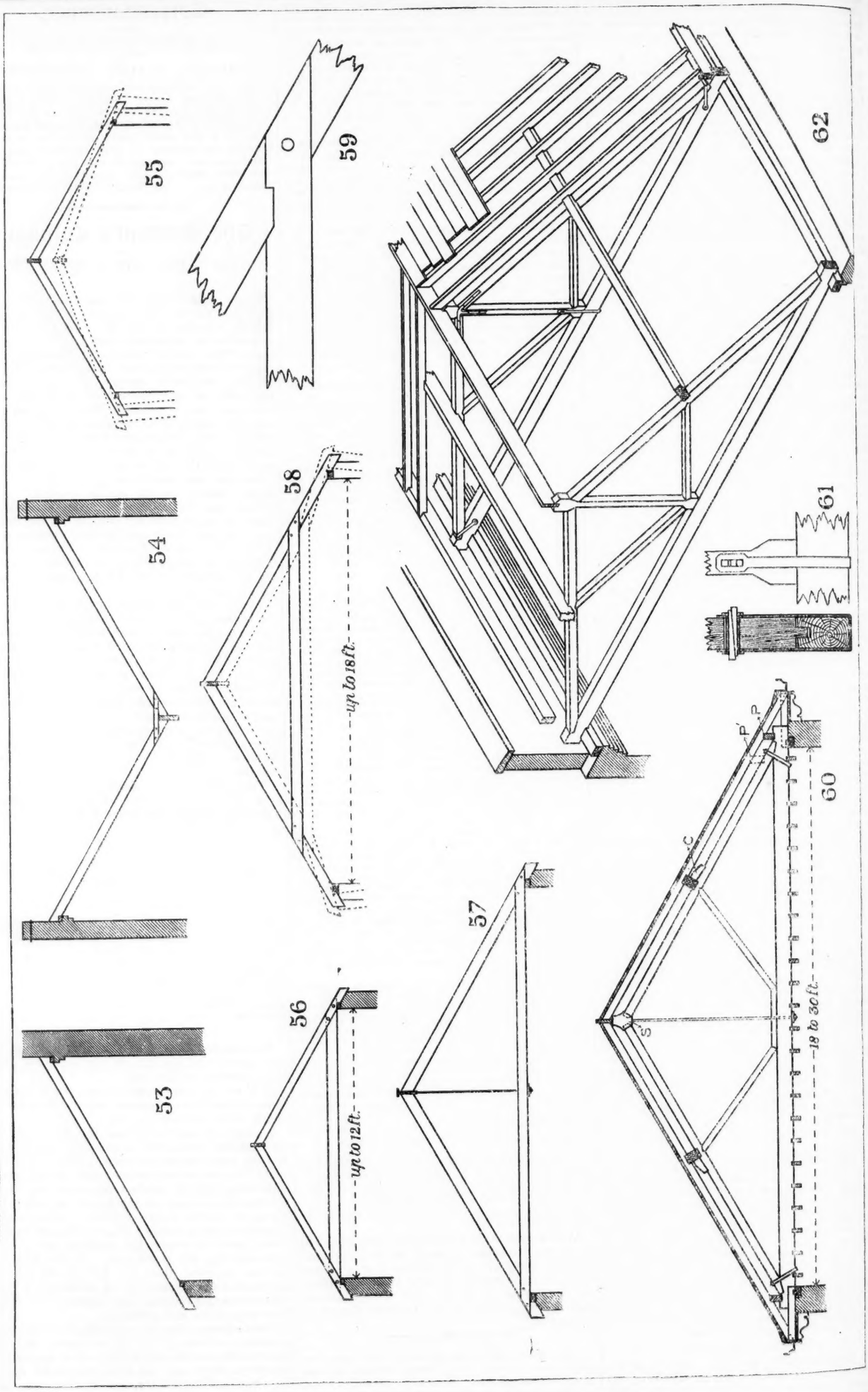
Kind of Covering.	Inclination to Horizon.	Height of roof in parts of span.
	° ′	
Copper	3 50	1/10
Lead	3 50	1/10
Zinc	4 0	1/9
Slates, large	22 0	1/2
" ordinary	26 33	1/2
Asphalted felt	3 50	1/10
Thin slabs of stone or flags	29 41	1/2
Pantiles	24 0	1/2
Thatch of straw	45 0	1/2
Plain tiles	45 0	1/2

The simplest form of roof is what is known as the *lean-to roof* (fig. 53), in which its one side leans against a vertical wall.

A *V-roof* is that in which two slopes incline from side-walls to a central gutter running the length of the building (fig. 54).

A *couple or single-span roof* (fig. 55) is one of the simplest forms, and consists of two rafters meeting at an inclination upon a ridge-board, to which they are securely nailed; their feet or lower ends being simply notched or nailed on to a wooden plate resting on the top of the wall. It is evident that the weight of the roof-rafters tends to push out the inclosing walls, as indicated by the dotted lines: to remedy this weakness the *couple-close roof* (fig. 56) is adopted. In this form it will be observed that the feet of the rafters are secured from spreading by means of a tie, which effectually prevents any tendency these may have to press the wall outwards.

The tie-beam, however, especially if it supports a ceiling, is liable to sag in the centre, and in order to prevent this a *king-bolt roof* is employed (fig. 57), a light iron rod being suspended from the ridge and bolted through the tie-beam. A light wooden suspending piece, spiked to the ridge, and, at its feet, to a longitudinal piece



Illustrations to Student's Column: Chapter V. Roofs.—I.

53. Lean-to Roof.
54. V Roof.
55. Couple Roof
56. Couple Close Roof.
57. King Bolt Roof.
58. Collar Beam Roof.
59. Detai of Tension Joint.
60. King Bolt Truss.
61. Detail of Gib and Collar
62. King Post Truss.

secured to the centre of the tie-beams, effects the same object.

Scantlings for Couple-close Roofs.

Pitch 30° with Countess Slates on 1 in. boards.

Span.	Rafter.	Ridge Board.	* Ceiling Joist.
Feet.	In. In.	In. In.	In. In.
8	3 by 2	7 by 1½	4 by 2
10	3½ ,, 2	7 ,, 1½	5 ,, 2
12	4 ,, 2	7 ,, 1½	6 ,, 2
14	4½ ,, 2	7 ,, 1½	7 ,, 2
16	5 ,, 2	8 ,, 1½	8 ,, 2
18	5½ ,, 2	8 ,, 1½	9 ,, 2

* When used they act as ties, but without king-bolt.

Another form of roof for small spans is that known as the *collar-beam roof* (fig. 58). It is useful when part of the roof is to be included in the room. The collar is placed a certain way up the roof (but the nearer to the feet of the rafters the better), and should be spiked or notched on to each rafter (fig. 59). It is intended to form a strut, but if the walls give way it becomes a tie, and the tendency is for the rafters to take the form shown in the dotted lines. Provided the walls are strong enough, and the collar applied to each rafter, it makes a fairly good roof; but all the weakness of the construction is emphasised, when, as is often the case, the collars are only placed at intervals, and support a purlin, which, in its turn, supports the intermediate rafters.

The following table is given from the R.E. aide-mémoire for the scantlings used in collar-beam roofs:—

Scantlings for Collar-beam Roofs.

Pitch 30°. If 45° add 1 in. to depth of rafters.

Span in Feet.	Rafters. For countless slates on ¾-in. boards, 1 ft. clear apart, or centre to centre if very exposed site.				Collars.	
	Thrust taken by walls or ties, collars ½ way up. *		Tied by collars ¼ way up to prevent walls spreading. †		From ¼ to ⅓ way up.	At any height.
	No ceiling.	Ceiled to collars.	No ceiling.	Ceiled to collars.	No ceiling.	Ceiled to collars.
	Inches.	Inches.	Inches.	Inches.	Inches.	
8	1½ by 2½	1¾ by 3	2¼ by 3¼	2¼ by 3½	1¾ by 2½	2 in. wide by ½ in. added to every ½ in. for every foot run of clear length of underside of collar.
10	1¾ by 2½	1¾ by 3	2¼ by 4	2¼ by 4½	2 by 2½	
12	1¾ by 2¾	1¾ by 3¼	2¼ by 4½	2¼ by 5	2 by 2¾	
14	1¾ by 3	1¾ by 3½	2½ by 5	2¼ by 5½	2 by 3	
16	2 by 3¼	2 by 3¾	2½ by 5½	2½ by 6	2 by 3½	
18	2 by 3¾	2 by 4¼	2½ by 6	2½ by 6½	2 by 4	

* Halve these collars on to rafters without cutting into latter.

† These rafters allow of the tension joint (fig. 59). If the collar is required ⅓ way up, about one-fourth must be added to both breadth and depth of rafters, and ¾ in. to depth of collars. But with unstable walls, ties are far cheaper, and may be at long intervals, if secured to wall-plates, of sufficient width to take the thrust between the ties.

During the Middle Ages many forms of roofs were used in which the tie beam at the feet of the rafters was not employed. These will be shortly discussed later on.

We have now arrived at a form of roof which can be used up to 18 ft. Beyond this point, however, it is found that the rafters of ordinary section have a tendency to bend, and require to be supported in their length, and that the tie-beam also must be supported. In order to effect these objects, what is known as "trusses" are used, and spaced at intervals of about 10 ft. apart. The simplest form is known as the *king-bolt truss*, and can be used for spans from 20 ft. to 30 ft. in length. The illustration (fig. 60) shows that in this simple form we have all the elements of a good truss; a wooden tie-beam sometimes supporting a ceiling prevents the feet of the principal rafters ftom spreading, and is supported in its centre by means of an iron king-bolt which prevents any tendency to sag in the centre. The principal rafters in a span of 20 ft. or more also require to be supported in the centre of their length. This is effected by means of struts resting at their base against a straining piece, and connected to the principal rafter as shown in Fig. 60. The head of the principal rafter and the king-bolt are let into an iron socket (S, fig. 60), and the feet of the principal rafters are held in position, not only by the oblique mortice and tenon, but also by an iron strap, as shown in fig. 60. The *king-post truss* is constructed on exactly the same principles as the last-named truss, with the exception that, as its name implies, the king-post is of wood. This form of truss is the most important assemblage of timbers which the carpenter produces, and is used in any position where it can be advantageously employed, such as in the upper part of a mansard roof, and many other cases. This being so, we may well discuss shortly the different parts of which the truss is composed. Fig. 62 is an isometrical view. The trusses are usually set up at distances of 10 ft. (or as near that length as can be arranged), and each truss has, therefore, to be strong enough to bear the weight of two half bays of its length. Across these principal rafters are laid the purlins, upon which rest the common rafters which support the boarding (or battens) on which the roof covering is laid. The king-post is primarily a tie to hold up the centre of the tie-beams, and it is further bevelled and mortised at top and bottom to receive respectively the head of the principal rafter and the feet of the struts (figs. 48, 49), which are tenoned into it. A groove is cut in the head to receive the ridge-piece to which the common rafters are nailed. The king-post is usually further connected at the head with the principal rafter by an iron strap, and to the tie-beam by a stub-tenon and what is known as a gib and cottar-joint (fig. 61), in order that the tie-beam may be tightened up when the roof is framed up; in this respect care should be taken that the foot of the king-post should, in fixing, be kept well above the tie-beam, in order that it may not bear upon it, instead of supporting it, when the roof settles. *Suspending pieces* (figs. 51, 52) are sometimes used as king-posts, and are more economical and quite as efficient. The method of putting them together is sufficiently shown in the illustration (see previous article, Nos. 51 and 53). The *tie-beam* which holds in the feet of the principal rafters, and is subjected to a tensile strain, which is counteracted by the weight of the ceiling, which it occasionally supports. The principal rafters are connected with it by an oblique tenon (fig. 47), and also secured by straps or bolts; the tie-beam is secured to the wall-plate by being notched or cogged, or sometimes rests on stone templates. The *struts*, whose purpose is to support the principal rafter and purlin, are in compression; it is evident they should be placed immediately under the purlins, and it is as well to keep this in mind, although in practice it is sometimes difficult of application; the feet of the struts are mortised into the spreading part of the king-post. The *principal rafters*, connected with the tie-beam and king-post and supported by the struts, are in compression. They support the purlins, which are notched to fit into a cog on the back of the principal rafter. This cog should be as wide as possible, so as not to weaken the principal rafter more than necessary.

The *purlins* are sometimes additionally supported by cleats (C, fig. 60), either spiked or housed to the back of the principal rafter. They should be placed so as to support the common rafter in the middle of their length, and should be formed of as long pieces of stuff as possible, in order to stiffen the whole roof, and to hold the trusses in position and prevent any inclination to heel over sideways.

Pole-plates (P, fig. 60), which run parallel to the length of the roof, and are required to take the end of the common rafters, which are bird's-mouthed to them, should be notched and spiked to the ends of the tie-beam as near the centre of the wall as may be. An objectionable position for the pole-plate is shown by the dotted line (P′, fig. 60), as it weakens the end of the principal rafter, where it mostly requires strength.

The *common rafters* are supported in their length by the purlin to which they are notched, as also to the pole-plate to which they are also spiked. On these common rafters, the rough boarding is nailed to receive the slates. Authorities seem to agree that by laying these diagonally the roof is strengthened.

We have now touched upon the various joints and connexions in a king-post truss, and from this article and that on joints, which has immediately preceded it, the student should have obtained a fair grasp of the subject in order to enable him to understand the construction of roofs of larger span and of more complicated construction, which we shall refer to in our next article.

The following table gives the scantlings for king-post roofs with or without ceilings, adopted by the Royal Engineers in the War Department buildings.

The horizontal wind force allowed for is 45 lbs. per foot acting only on one side of roof at a time, or a normal pressure of 30 lbs. per foot for a 30 deg., and 40 lbs. for a 45 deg. pitch.

The scantlings are for pitches up to 30 deg.:—timber, Northern pine; slates, Countess, on 1-in. boards. For roofs of 45 deg. pitch, add 1 in. to the depth of the common rafters, purlins, and struts, and ½ in. to the depth of the principal rafters, as given in table.

Trusses 10 ft. apart.	Span in feet.	Tie-beam, depth includes 3 ft. for joints.	Principal rafters.	King-posts.	Struts.	Purlins.	Common rafters.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
King-truss no ceiling.	20	3 by 4½	3 by 5	3 by 2¾	3 by 3	5 by 7½	2 by 3½
	22	3 by 4¾	3 by 5½	3 by 2¾	3 by 3½	5 by 7¾	2 by 3¾
	24	3½ by 4¾	3½ by 5½	3½ by 2¾	3½ by 3½	5 by 8	2 by 4
	26	3½ by 4¾	3½ by 5¾	3½ by 2¾	3½ by 4	5 by 8¼	2 by 4¼
	28	4 by 4¾	4 by 5¾	4 by 2¾	4 by 4	5 by 8½	2 by 4½
	30	4 by 4¾	4 by 6	4 by 2¾	4 by 4½	5 by 8¾	2 by 4¾
King-post Truss Ceiled to Tie-beam.	20	4 by 7	4 by 4	4 by 3	4 by 2½	5 by 7½	2 by 3½
	22	4 by 7½	4 by 4½	4 by 3	4 by 3	5 by 7¾	2 by 3¾
	24	4½ by 8	4½ by 4½	4½ by 3	4½ by 3	5 by 8	2 by 4
	26	4½ by 8½	4½ by 5	4½ by 3	4½ by 3	5 by 8¼	2 by 4¼
	28	4½ by 9	4½ by 5½	4½ by 3	4½ by 3½	5 by 8½	2 by 4½
	30	4¾ by 9½	4¾ by 5¾	4¾ by 3	4¾ by 3¾	5 by 8¾	2 by 4¾

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE following recommendations of the Building Act Committee of the London County Council were agreed to at the weekly meeting on Tuesday, those applications which were granted being subject to certain conditions:—

Lines of Frontage.

Marylebone, East.—The erection of a temporary iron and glass covered-way and inclosed porch in front of the entrance to Tussaud's Exhibition, Marylebone-road, on the application of Messrs. Gordon, Lowther, & Gunton, on behalf of Madame Tussaud & Sons.

Marylebone, West.—The rebuilding of No. 276 (the "Poppy" public-house) and No. 278, Edgware-road, on the application of Mr. P. Green on behalf of Messrs. Newman & Newman.

Clapham.—The erection of two projecting porches to the Presbyterian Church, Battersea-rise, at the corner of Altenburg Gardens, on the application of Mr. E. B. Lamb.

Hackney, Central.—That the consent of the Council be not given to the erection of a one-story shop upon part of the forecourt of No. 230, Dalston-lane, on the application of Messrs. J. H. & H. E. Jones on behalf of Mr. J. J. Whitby; it being considered undesirable to permit the existing frontage of the residential property at this part of the street, and also westward of the intended shop, to be disturbed by its erection as proposed.

Hampstead.—That the consent of the Council be not given to the erection of a studio on the south side of No. 76, Finchley-road, on the application of Mr. F. A. Davids on behalf of Mr. S. Carter; it being considered inexpedient to permit the existing frontage at this part of the road to be disturbed by the erection of the studio to the height and of the projection proposed.

Islington, North.—The erection of one-story shops upon part of the forecourts of Nos. 169 and 171, Stroud Green-road, on the application of Mr. G. Carter, on behalf of Mr. J. E. Bedingham.

Marylebone, West.—That the consent of the Council be not given to the erection of wood and glass screens at the entrance-doorway to No. 3, St.

John's Wood-road, on the application of Mr. Isaac Mason on behalf of Mr. A. Longstaffe.

St. George, Hanover-square.—The erection of an addition to the porch in front of No. 38, Berkeley-square, on the application of Mr. J. Aspell on behalf of the Earl of Rosebery.

Wandsworth.—That the consent of the Council be not given to the erection of a one-story shop upon part of the forecourt of No. 52, Bedford Hill-road, Balham, on the application of Mr. H. J. Capell on behalf of Mr. C. A. Robinson.

Width of Way.

Poplar.—That the consent of the Council be not given to the erection of a temporary wood and iron mission church on the north side of Duff's Fields, St. Leonard's-road, at the rear of St. Frideswide's School, on the application of Humphrey's, Limited, on behalf of the Rev. W. A. Carroll; as it appears that the church, if sanctioned in the position proposed, would encroach to an extent of about 9 ft. upon the public way in Duff's Fields, which is exceedingly narrow, and it is considered inexpedient to permit the erection of the building at less than the prescribed distance from the centre of the street.

Holborn.—The erection of a portion of a block of dwellings, to be inhabited by persons of the working class, on plot 5 of the Council's land in Macklin-street (Shelton-street improvement scheme) at less than the prescribed distance from the centre of Newton-street, on the application of Mr. R. Plumbe, on behalf of the Public Health and Housing Committee.

Limehouse.—The erection of a house between Nos. 12 and 16, Elsa-street, White Horse-street, on the application of Mr. C. A. Legg on behalf of Mr. W. Jeffery.

Line of Fronts and Width of Way.

Southwark, West.—That the consent of the Council be not given to the erection of one-story shops in front of Nos. 185, 187, 189, 191, and 193, Waterloo-road, St. George-the-Martyr, on the further application of Mr. W. M. Seaman on behalf of Mr. J. B. Martin; it being considered inexpedient both by the Council and the Vestry that the existing frontage at this part of the road should be disturbed by the erection of the shops.

Formation of Streets.

Dulwich.—That an order be sealed and issued to Mr. W. S. Cooke, sanctioning the formation or laying out of a street 40 ft. wide for carriage traffic, to connect Madeline-road with Versailles-road, Anerley, on his application on behalf of the School Board for London. That the name "Madeline-road" (in continuation) be approved for the new street.

Buildings for the Supply of Electricity.

Lambeth, North.—That the Council do approve of the plans, dated December 19, 1895, as modified by the plans dated January 27, 1896, submitted with the application of Mr. W. B. Pinhey, on behalf of the Charing Cross and Strand Electricity Supply Corporation, Limited, for the construction of a generating station, iron coal bunkers and furnace chimney shaft at No. 85, Commercial-road, Lambeth.

GENERAL BUILDING NEWS.

ADDITION TO LEEDS WORKHOUSE BUILDINGS.—An addition is about to be made to the Leeds Workhouse buildings, and ten sets of plans and designs were submitted in competition. These were submitted to Mr. J. Vicar-Edwards, the County Surveyor to the West Riding, as adjudicator, and he decided in favour of the plans of Mr. J. Mitchell Bottomley, of Middlesbrough and Leeds. At a meeting of the Building Committee it was unanimously resolved that the designs be accepted, and recommended to the Guardians for adoption.

BAPTIST CHAPEL, INSKIP.—The Baptist Chapel at Inskip has just been recently renovated, from plans prepared by Mr. W. H. Dinsley, architect, of Chorley. The builder is Mr. J. Tomlinson, of Kirkham.

NEW CHURCH OF ST. PAUL, WESTHAM, WEYMOUTH.—On Saturday last the Bishop of Salisbury opened the new church at Westham, Weymouth. In 1893 it was determined to have a limited competition for plans for a new church, and four architects were invited to compete, with Mr. William White, F.S.A., as assessor. Three sets of plans were sent in, and those of Mr. Geo. H. Fellowes Prynne, of Westminster, S.W., were selected by the assessor and committee. Mr. W. H. Gooding, builder, of Exeter, was given the contract for building, and in May, 1894, the foundation-stone was laid. Later, owing to serious difficulties with the builder, the work was temporarily stopped; but other arrangements were made by the architect and committee for carrying forward the work with as much expedition as possible. The architect offered to undertake the completion of the work with the assistance of Mr. C. Foad, the then clerk of works. The portion of the church now completed consists of the chancel, vestries, organ-chamber, two bays of the nave and north aisle, and south transept, besides the permanent foundation for the complete church previously mentioned. The floor already occupies the space of a third bay at the west end, but the addition of this bay is otherwise of a temporary character. The only other temporary work that shows as such is the blocking up of the arches between the chancel and transept leading into the chapel. The style of the church is a free treatment of fifteenth century or Perpendicular work. The plan is simple and convenient in form, and consists of a nave 82 ft. in length and 24 ft. in width, 54 ft. of the total length being included in the portion now carried out. The chancel is 35 ft. 9 in. in length, by 22 ft. 6 in. in width. On the north side of the nave there is a 12 ft. aisle, good-sized vestries and organ chamber being placed on the north side of the chancel. On the south side of the nave a double transept is thrown out, occupying two bays of the nave, the remaining three bays having an aisle similar to that to the north. On the south side of the chancel is placed an apsidal-ended chapel with a small aisle for future harmonium. The south transept forms, as it were, a nave to the chapel. Convenient entrances are placed at the west end of the nave, south transept, and at east of north aisle. Four steps lead from nave to chancel, two from the chancel to sanctuary, and three white marble steps to the high altar. The heating is on the high-pressure small-bore system, and the work has been carried out by Messrs. Longbottom, of Leeds. The church is built of Portland stone, with dressings and window tracery in Doulting stone, and the roof is tiled with Broseley tiles. The cost up to the present has been between four and five thousand pounds.

PROPOSED RECONSTRUCTION OF LEEDS MARKETS.—The Markets Committee of the Leeds Corporation had under consideration, on the 30th ult., an amended report by the City Engineer (Mr. Hewson), respecting the proposed rearrangement of the Kirkgate markets. This rearrangement is rendered partially necessary by the intended widening of Vicar-lane, on which the Covered Market abuts. Increasing the width of the street to 75 ft. will involve the pulling down of about 30 ft. in depth of the present covered market, which practically means that the whole of the market shops fronting on Vicar-lane will have to be removed. Whilst thus moving back the building line, the committee think it advisable to remodel the whole of the market. As the roof of the Covered Market is in a somewhat dilapidated condition, practically beyond repair, Mr. Hewson advises the committee to pull the whole of the Covered Market down, and rebuild it after a more picturesque design than it was orginally built from. The total area of this market-hall, with the shops abutting on the street, would only be some 140 square yards less than the present Covered Market. This is accounted for by the fact that the site now known as Ludgate-hill would, to some extent, be added to the market, the continuation of George-street to Vicar-lane doing away with the necessity for that place. It is proposed to make the frontage to Vicar-lane three stories high, with three entrances from that street. As to the area now used as a wholesale market, which is found to be too small, Mr. Hewson advises that the old Fish Market should be taken down, and that the land which it now covers, as well as that which it severs from the wholesale area, should be added to that area. With the same object, steps should, he thinks, be taken for the diversion of Harper-street, by widening and extending Harper-place along the front of the Weights and Measures Office direct to New York-street, thus making the Markets Committee's estate—i.e., excluding site of Weights and Measures Office—into one, instead of several plots of land. The cost of carrying out the scheme is roughly estimated at 50,000*l.* Further details are to be presented by Mr. Hewson at the next meeting of the committee.

HAWKHEAD ASYLUM, RENFREWSHIRE.—Hawkhead Asylum, which has been erected at Crookston, near Paisley, for the Govan District Lunacy Board, was opened on the 23rd ult. The cost of the building is estimated at 142,000*l.* Situated on rising ground about five miles south-east of Glasgow, the Asylum forms a prominent feature in the landscape. It is in the Scottish Baronial style. The main block contains the official and administrative departments, and on each side are two separate blocks for male and female patients respectively. Each block is practically self-contained, being connected only by a glass and wooden corridor. In the ordinary departments 280 patients will be accommodated, and the hospital will have room for 144; but provision has been made for future extensions, so as to lodge in all 761 patients. The main block is surmounted by a tower 200 ft. high—not yet completed—the upper portion of which will be utilised for storing water, which will be obtained from Paisley. Mr. Malcolm Stark was the architect.

COTTAGE HOSPITAL, ORMSKIRK.—On the 19th ult. Lady Derby opened the new Ormskirk Cottage Hospital, which is situated on a piece of land between two and three acres in extent, and separating Burscough-street and Southport-lane. The building consists of three blocks on the pavilion system, connected by a corridor 55 ft. long by 8 ft. wide. The central block consists of entrance-lobby, operating room, and bath-room on the Hants-lane front, and a ward for two beds on the south side. At either end of the corridor is a ward, one for males and the other for females, each with space for three beds. The sanitary blocks to each front Hants-lane, and are disconnected from the wards by a ventilated lobby. The three wards face the south, and are so arranged that the accommodation can be increased at a minimum of cost. The floors are of red pine, oil-stained and varnished. The warming and ventilation of the wards is by Manchester and ordinary open grates, and iron fresh-air pipes, which can be removed for cleaning. In the corridor are two coils of hot-water pipes, which are heated by means of a Halifax independent boiler. This also provides the hot-water supply throughout the building. Externally, the building is built of grey St. Helen's brick, with red brick dressings and red sand-stone sills. The roof is covered with Staffordshire red tiles. The gables of the two main wards fronting Hants-lane are filled in with half-timbered work, and grey cement panels, designed and carved by the architect. The contractor was Mr. James Pilkington, of Rainford. The railings to Hants-lane are by Mr. J. J. Balmforth, and the entrance gates by Messrs. John Ball & Co., of Ormskirk. The grounds have been laid out by Mr. E. Thomas, of Town Green. The architect for the works is Mr. C. S. Beeston, of Ormskirk.

BOARD SCHOOL, GREETLAND, HALIFAX.—The Elland-cum-Greetland School Board have just adopted the plans for the new Board School to be erected at Upper Greetland, prepared by the Board's architects, Messrs. Horsfall & Williams. The schools will be in the form of the letter T. The site falls from west to east, and by placing the floor of the infants' school on a higher level than the main building, provision is made for a cooking-kitchen to be placed under the eastern end. The infants' school will comprise a marching-hall, 32 ft. by 20 ft.; a class-room and babies'-room, each 20 ft. by 20 ft.; as well as lavatories, &c. In the mixed department there will be an assembly-hall, 50 ft. by 23 ft.; and three class-rooms, 25 ft. by 20 ft.; two teachers'-rooms; cloak-rooms, corridors, &c. There will be covered playgrounds for both boys and girls. The school will provide accommodation for 254 children.

TEWKESBURY ABBEY RESTORATION.—A meeting of the Tewkesbury Abbey Restoration Committee was held in the vestry of the Abbey, Tewkesbury, on the 21st ult., to consider the report of Mr. J. Oldrid Scott, the architect, on the state of the Abbey. In his report Mr. Scott stated that the time had arrived when it was necessary to deal with some parts of the external walls and with a portion of the lead roofs. The lower part of the walls was at one time covered to a height of three or four feet by the soil which had accumulated round the building. This soil was removed several years ago, and the exposed stonework repaired. For some time it stood well, but it seems to have suffered some serious injury by being thus buried and then exposed to the effects of air and frost. The coping of the west end of the south aisle is in a very bad state, the stones are much broken and decayed, and the weather is thus able to penetrate the wall below. This should be set right without delay. There are places in the south transept which require attention, and it seemed to him especially desirable to repair the large crack which runs through nearly the whole height of the gable wall. One of the most urgent matters is the beautiful stone panelling on the exterior of the south aisle wall, which once formed part of the cloister. This delicate work was never intended to be exposed to the weather as it has been ever since the cloister perished. The stone used seems quite unable to stand the action of the weather, and it is now perishing rapidly. Some details of the stonework have already gone, and many parts are ready to fall away when touched. Steps should be taken immediately to arrest the decay, and he advised the application of some chemical solution to the surface of the old stonework. Mr. Scott also reported on the lead covering of the roofs. The cost of carrying out these works would be ascertained later on; but, in the meantime, not less than 700*l.* should be raised for the expenses of the next twelve months. The repairs were all of an important and even urgent nature. No attempt at anything like "restoration" would be made, nor should there be any idea of removing the worn and rugged character which so much of the stonework has acquired. It was decided to take steps to raise a fund, and the Archdeacon of Gloucester was invited to act as chairman of the committee. The Archdeacon and Mr. Alfred Baker were appointed treasurers of the fund, and Mr. Frederick Moore consented to remain as hon. secretary to the committee.

EXTENSION OF THE BRADFORD EXCHANGE.—The extension of the accommodation of the Bradford Exchange is now almost entirely completed. When an extension was resolved upon Messrs. Mawson and Hudson, the present representatives of the firm of Messrs. Lockwood & Mawson, who originally designed the building, were consulted, and they advised the utilisation of a triangular strip of the site. The internal walls and alcove have accordingly been cleared away, and the site of the staircase and shop, together with every inch of space up to the outside wall of the building, has been added to the floor space of the hall. This amounts in area to an addition of about 100 square yards. But besides this, a floor has been inserted into this space at a convenient height to divide it practically into two stories. The side of the upper story, like that of the lower, is open to the north aisle, and looks as a balcony upon the whole building. This will afford an additional area of over a thousand square yards of floor space. Access to the gallery is obtained by a staircase from the floor of the hall, near the entrance

from the Bank-street lobby, and a balustrade of wrought-iron and oak will front the gallery and defend the steps. The abolition of the Hustlergate staircase has necessitated the provision of other means of access to the offices on the top floor, and this has been supplied by the construction of a long corridor connecting the staircases at the Bank-street entrance with the main entrance towards the Midland Station. This corridor has been without difficulty carried along the roof of the aisle of the hall on the Hustlergate side. The work of the building has been carried out, under the supervision of Messrs. Mawson & Hudson, by Mr. Frederick Ives, builder, the contract price being 2,600*l.*

THE NEW HAYMARKET THEATRE AND BUILDING.—Workmen have begun the foundations for a new theatre, an arcade, a restaurant, and a café on the site where Her Majesty's Theatre formerly stood. According to the daily papers, other plans were previously brought forward and passed provisionally by the London County Council, but the contract for letting the land for this purpose has now been rescinded, and Mr. C. J. Phipps has prepared the designs for the combination building before mentioned. The house, it is stated, will be about the same size as the Lyric in Shaftesbury-avenue. Exactly in the centre of the Haymarket frontage an arcade will be built with shops on both sides, running into the old Opera Arcade, which is to be widened and improved. The plans provide for a café of the French type at the corner of Pall Mall and the Haymarket, and the whole of the first floor, from the theatre to this corner, will be devoted to a restaurant. There will be a central courtyard or garden at the Pall Mall end, round which blocks of residential chambers will be built, in the modern style of small "self-contained" sets. The shops now closed in Pall Mall, under that portion of the old Roman Doric colonnade which has been saved from the wreck, will be rebuilt and let, but the difficulty with a firm of wine merchants, who hold a seventeen years' lease of their particular premises, and claim a right to the colonnade as far as their tenancy reaches, has not yet been adjusted. The fate of the colonnade will depend upon this settlement.

EXTENSION OF BUSHBURY ELECTRIC CONSTRUCTION WORKS, WOLVERHAMPTON.—The directors of the Electric Construction Co., Lim., have commenced additions to their depôt situated at Bushbury, near Wolverhampton, from plans and specifications prepared by Mr. A. B. Blackburn, civil engineer. The office arrangements have already been extended, and as employment is now given to a large number of hands it has been found necessary to provide a new provision stores in connexion with the mess-rooms. The site of the operations now going on adjoins the west side of the present main shopping, at the junction of the Stafford-road and Showell-road, and comprises over an acre of land at the rear of Gorsebrook House, Gorsebrook. The building will measure 180 ft. long by 100 ft. wide. The present stores room, which is 150 ft. long by 100 ft. wide, will be converted into a machine-shop. The total cost of the extensions and alterations, including the extra tools and machines, is estimated at 10,000*l.*

NEW CHURCH SCHOOLS, BURSLEM.—The foundation-stones have just been laid of the new day-schools which are to be erected in connexion with St. John's Church, Burslem. The new schools will provide accommodation for 708 children—250 girls, 250 boys, and 208 infants. A feature will be a parochial room that will seat nearly 500 people. The site adjoins St. John's Church. The total cost will be about 4,000*l.* The architects are Mr. A. R. Wood and Mr. G. L. Jones, and the contractor is Mr. Cooke, the amount of his contract being 2,730*l.*

HUDDERSFIELD NEW SANATORIUM.—A new hospital for infectious diseases is to be built at Mill Hill, Dalton. The architects are Messrs. Edward Thomas & Sons, Westminster, their designs having been selected in competition. The hospital is to accommodate 90 patients. There will be three pavilions, each containing two ten-bed wards, two four-bed wards, and one two-bed ward for suspected cases under observation. The administrative block will provide accommodation for both day and night nurses, matron's apartments, and rooms for the medical officer. The laundry will be sub-divided, so that the clothing of the patients shall not come into contact with that of the staff. The whole of the buildings will be connected by covered ways.

SANITARY AND ENGINEERING NEWS.

TEIGNMOUTH WATER-SUPPLY.—The Teignmouth District Council have received from their Surveyor, Mr. C. Jones, a report he had prepared, with a view of meeting the Council's requirements for the provision of a constant water-supply all the year round. At present, according to the report, the town depends for its supply on pumping at Mylor Well, the Coombe Brook, and the spring at Landscore, which was divided for distribution purposes into a high and low level supply. This Mr. Jones considered unsatisfactory. He was of opinion, knowing that their actual consumption was only 12 gallons per head per day, that the solution of the difficulty was in the development of their present sources of supply and the re-arrangement of the system of distribution. His suggestions would necessarily form part of any larger scheme. He suggested (1) make Hazeldown reservoir watertight and cover it; (2) cover Handscore reservoir and fix a floating outlet; (3) rearrange the mains so that the pumps deliver direct into Hazledown reservoir, and lay a 4-in. main into New-road from Exeter-road to Buckeridge-road; (4) duplicate main water meters to register the consumption in high and low levels and at Shaldon; (5) extension of the Deacon system to high levels and Shaldon; (6) reconstruction of existing filter-beds, and the construction of another at Coombe; (7) replace defective and worn-out valves, and provide additional valves for inspection purposes and concentration of pressure in case of fire. He estimated that these works would not cost more than 4,000*l.* On the motion of Mr. Harris, seconded by Mr. Slocombe, the report was referred to a committee of the whole Council.

PUBLIC IMPROVEMENTS AT MENAI BRIDGE.—The Urban Sanitary Authority have, it is stated, entrusted Mr. R. G. Thomas, architect, with the preparations of the plans of the promenade pier it is prepared to construct at Ponc Morgan, at a point between the two landing-stages now used by the Liverpool steamers. The plans for the proposed town-hall and artisans' dwellings are being prepared by Mr. Joseph Owen. The projects before being finally determined upon are to be submitted to a meeting of the ratepayers.

MANCHESTER AND SALFORD SANITARY ASSOCIATION.—The annual meeting of this Association was held on Monday last, Dr. Leech presiding. For the last twenty years the Association has done good work. The pamphlets published under its direction cover almost the whole field of sanitary science, and many of them are quite excellent. The Association has not confined itself to the issuing of pamphlets, however, but has taken active steps to secure open spaces for recreation and air, and to prevent the vile pollution of air by smoke. This question of smoke-abatement was one of the chief topics at the meeting on Monday, and although something had been accomplished, it was agreed that much remained to be done. The difficulty of inducing people to prosecute, and the greater difficulty of inducing magistrates to impose heavy penalties on offenders were mentioned. One lady in the neighbourhood of Manchester is waging incessant warfare against manufacturers' factory-smoke, but she is only one. And behind the question of factory-smoke looms the still greater question of house-smoke. It is strange that smoke-consumption, as applied to household fires, has received so little attention.

FOREIGN.

FRANCE.—The large buildings which are to replace the studios for the scene-paintings of the Opéra and Opéra Comique, which used to be in the Rue Richer, and were destroyed by fire three years ago, are just finished. They are now close to the fortifications, in the Boulevard Berthier, between the Port de Clichy and the Port de Villiers.——A very fine dolmen has just been taken to Meudon, near Paris, it comes from Ker-Hau, near Locmariaquer (Morbihan), and is to be placed on the tomb of M. Picketty, an archæological savant, who has made many interesting discoveries in the bed of the Seine.——The celebrated geographer, Elisée Reclus, proposes to make a gigantic globe for the 1900 Exhibition. It is to be 128 mètres in diameter, which is one hundred-thousandth the diameter of the world at the equator. The extreme height, including the masonry supports, will be 194 mètres, and the weight 27,000 tons. In the interior will be two committee rooms. M. Reclus estimates the cost at 20 millions of francs.——Contrary to the Ministerial instructions relating to historical monuments, the architects of *bâtiments civils*, in order to gain time, have had the strange idea of going on with the cleaning of the walls and pillars of the Cathedral of Soissons, one of the most beautiful buildings of the thirteenth century. By means of scraping with an iron brush and a rasp, very distinct traces of the cleaning are visible. The south transept alone has been spared.——A jury, composed of the architects MM. Vaudremer, Baudot, Châme, Franz Jourdain, and Janty, have been commissioned by the journal *Le Bâtiment* to decide an open competition on the best way of building stables for bicycles in Paris houses.——The sculptor Gaudez has been appointed to execute a statue of the engineer Perronet, who built the Pont de la Concorde, and that of Neuilly-sur-Seine. The statue is to be placed in one of the squares at Neuilly. The same sculptor has just given to the town, a statue of Hebe, which is to be placed in front of the Hôtel de Ville.—— M. Beignet, architect at Angers, has been elected President of the *Société des Architects de l'Anjou* for 1896. M. Larney, architect at Reims, has been elected President of the similar Society at Marne.——The eighth exhibition of the "Amis des Arts" at Nimes will be held from April 29 to June 1.——It is announced that a part of the old church of Maulevrier, near Cholet, fell last Sunday just at the time of High Mass.—— There are several works of Puvis de Chavannes and Eugène Carrière, also of the sculptor Rodin, on exhibition at Geneva. The exhibition, which is a special one, is having a great success.——The Empress Eugénie has presented all the plans and designs for her own apartments at the Tuileries to the Musée des Arts Decoratifs.——The Municipality of Algiers has adopted a plan presented by the engineer, M. Escande, for supplying water, at the rate of 500 litres per inhabitant.——The architect, M. Jacques Lequeux, is to execute the monument to Eugène Delacroix, which the Conseil-Général de la Seine is going to erect at Saint Maurice. The monument will be surmounted by a bust of the painter, a copy of the one by Dalou in the Luxembourg Gardens.——M. Buquet, architect, has been commissioned to make definite plans for the future hall *Des Séances* for the Chamber of Deputies. The cost is estimated at about three million francs.

GERMANY.—The German papers and technical contemporaries are commenting on the matter of the salary for the new City Architect of Berlin, partially in reference to our remarks on this subject in December last. It is time that something were done to improve the position of the principal building official. We understand that Herr Ludwig Hoffman, the architect of the Imperial Law Courts at Leipzig, has been recommended for the post by the committee in charge of the matter. This would indeed be a very good appointment.——We hear of an amusing law case from Wittenberg, where the municipality is suing the Prussian Government for the restitution of a pew which had been destroyed during the "restoration" of the historical castle church.——The Berlin Municipal "Art Committee" continues its purchases of pictures and statues from public funds. It has lately bought a piece of sculpture by Herr Brunow for the Victoria Park.——The long mooted scheme of some new buildings for the Royal Academy schools will now probably be realised. The Government estimates include a sum of 2,500*l.* for the preliminaries, such as the preparation of plans.——A large hall is to be erected at Berlin to hold an audience of 5,000 and serve as an "Olympia" similar to the London institution of this name. The building is to be of architectural pretensions and in the Saracenic style. Mr. Kiralfy is to have the management of the new hall.——At the annual general meeting of the Society of Berlin Artists, further particulars were given as to the probable participation of foreigners in the coming International Art Exhibition. It appears that each country has a special representative at Berlin, Professor Sutteroth acting for England. The Prussian Government has been asked for a vote of 7,500*l.* for an extension of the exhibition galleries.——The Emperor has now definitely decided on having a row of statues erected in the Siegesallee, and has commissioned the sculptors Unger and Scott to take charge of the work. Each statue will stand on a plain pediment at the front of a raised semi-circular platform. Each monument will cost 2,500*l.*——Berlin is to have a new institution for the encouragement of athletic sports, and a company is being formed for the purchase of the grounds and erection of the necessary buildings, which include a swimming-bath, club-room, covered tennis-courts, &c.——The meteorological station is to have new buildings and instruments at a cost of 35,000*l.*, of which 15,000*l.* will be required for the station proper.

MISCELLANEOUS.

LONDON RAILWAY AND TRAMWAY SCHEMES.—We have received from Mr. E. Stanford a map of London, deposited at the London County Council for the Session of 1896, showing in coloured lines, continuous, dotted, and otherwise distinguished, railways and tramways in operation, sanctioned, and proposed, together with a numbered index of these and other improvement schemes, with corresponding numbers on the map. To those concerned in London improvements the map will be useful, one might say indispensable.

YOUNG & MARTEN'S "BOILER TELL-TALE."—In noticing this last week (page 100), we observed that the use of such a contrivance for showing whether the pipes are in a safe condition should not be an excuse for dispensing with a safety-valve. Messrs. Young & Marten write to say that the upper portion of the tell-tale is constructed as a safety-valve, to blow off at a pressure of 30 lbs. to the square inch. This was not made clear, as far as we observed, in the description forwarded to us.

ST. PAUL'S ECCLESIOLOGICAL SOCIETY.—In the seventeenth annual report of this Society it is stated that seven meetings have been held at the Chapter House since the last report, at which papers on the following subjects have been read:—"The Parish Churches of West Kent, their dedications, altars, images, and lights, being gleanings from the Wills of West Kent Folk from 1400 to 1558," by Mr. Leland L. Duncan, F.S.A. "Notes in Spanish Churches, as bearing upon old English Ritual," by Dr. Reginald Eager. "Some Inscriptions of the British Church," by the Right Rev. the Bishop of Stepney. "Notes on the Brasses and Matrices at St. Alban's Abbey," by Mr. Andrew Oliver. "The Ecclesiology of Ogham Inscriptions," by Mr. R. A. S. Macalister. "Miracle Plays, Moralities, and Interludes," by Mr. Richard B. Holt. An exhibition of objects of ecclesiological interest occupied one evening, as in previous years. Afternoon visits were made to the following places:—The Crypt of St. John, Clerkenwell, under the guidance of the Rev. T. W. Wood, the rector. Sir John Soane's Museum, conducted by Mr. G. H. Birch, F.S.A., the curator. The parish churches of Chislehurst, Kingsbury and Hendon, Bromley, Beckenham, Willingale Spain, Hornchurch and Up-

minster. A whole-day excursion was made to Peterborough. Part V., completing Volume III. of the Transactions, has recently been issued. The Council in concluding their report referred to the great loss which the Society has sustained by the death of Mr. Charles Browne in November last. For many years he was a member of the Council, and very regular in his attendance at the meetings of the Society.

ABUSES OF PUBLIC ADVERTISING.—The National Society for Checking the Abuses of Public Advertising held a general meeting on the 31st ult. at the Society of Arts, Adelphi. Mr. Alfred Waterhouse, R.A., the President, occupied the chair, and in an opening address lamented the death of Lord Leighton, who was heartily in sympathy with the objects of the Society. The community, Mr. Waterhouse thought, must guard most jealously the natural beauties which remained against destruction and degradation, and keep towns as far as possible free from sights and sounds which degraded city life. He mentioned among the things to be battled with the unnecessary emission of smoke from chimneys, the exhibition of ungainly signs, the enormous and gaudy posters which made it impossible to appreciate the beauty of the adjacent architecture, the shrieks of the newspaper boys, and the foolish repetition of the same enamelled plates at railway stations, preventing the travelling public recognising their destination when they reached it. The public might be persuaded that offensively advertised goods were not necessarily the best, some advertisers might be appealed to against the selfishness of setting aside the feelings of others, and public opinion should be aroused to take combined action to check the disfigurement of the beautiful world. There was encouragement in the fact that a decided check had already been put on field advertising, which at one time threatened to leave no beautiful spot undesecrated. Sir Lepel Griffin proposed the first resolution as follows:—"That it is a national interest to protect rural scenery from unnecessary disfigurement, and to maintain dignity and propriety in the aspect of our towns." He said that this country had taken the device of placing advertising placards amidst rural scenes from the United States, and in the abuse of advertising we could now almost give points to America. Mr. William Morris, in seconding the motion, laid stress upon the defacement of rural scenery, and the resolution was adopted. Mr. W. B. Richmond, R.A., next moved:—"That this meeting, impressed with the serious injury done by the practice of indiscriminate spectacular advertising, regards the Rural Advertisements Bill, which was brought in by Mr. Boulnois in the Sessions of 1894 and 1895, as a measure of urgent importance, and commends it to the goodwill of the new House of Commons." He held that no advertisements should be allowed on any buildings except railway stations.—Mr. Crackanthorpe, Q.C., seconded the motion, speaking of the practicability of the proposed legislation, and pointing to the fact that the London County Council had dealt with sky-signs.—The resolution, which was supported by Mr. H. H. Statham, who was called upon by the Chairman, having been carried, the report and statement of accounts of the Society were passed on the motion of Mr. Humphry Ward, seconded by Mr. St. Loe Strachey.

COMBINATION STOP-TAP.—Mr. Brazier, registered plumber (Holloway), sends us an illustration and description of a tap which is to afford facility for emptying the pipes within the house during frost, and drawing water direct from the main. There are three taps on the main branch entering the house, one on each side of the regulation stop-tap. The supply of water into the house can be shut off by the stop-tap; the water within the pipes run out through the tap on the "house" side of it, and the water wanted during frost obtained from the other tap on the "main" side of the stop. This is a convenience for houses where the cisterns and pipes are so badly placed as to be liable to be frozen up, which, however, ought never to be the case; it is perfectly possible to place and protect them so as to secure them from frost.

"LUKE ELLIS."—Will the correspondent who sent us a manuscript with this signature kindly send his address?

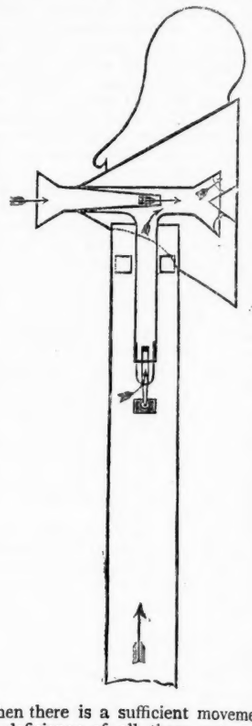
MISTAKES IN THE BUILDING TRADE.—The third of the series of monthly papers in connexion with the Glasgow Building Trades' Exchange was read in the Exchange, 30, Gordon-street, on the 30th ult., by Mr. Alexander Muir. Colonel Bennet presided. The subject of the paper was "Mistakes in the Building Trade." At the outset Mr. Muir dwelt briefly on the imposing grandeur of the buildings of the ancients as compared with those of the present day. He laid the blame of our pettier structures on the fever heat at which we now lived. Our buildings, like everything else, were rushed. In the far back days buildings were planned and erected calmly and without hurry, and consequently gained in dignity. Even within the present century very much more time was allowed to builders than at present, and then builders seemed to take more enjoyment out of life, to labour less, and to gain greater profits. In these days very many proprietors were resolved on getting a magnificent structure at a ridiculously small price. They started the economising process by employing an inferior architect; and architect and measurers too frequently combined to persuade the economist that his notions could be carried out for the sum he proposed to expend. In the end he discovered that the cost was greatly in excess of his anticipation. This method of doing things told against the contractor, as, in order to keep the proprietor as long as possible in ignorance of the ultimate cost, he was only granted instalments in proportion to the schedule price. Consequently he was kept lying out of considerable sums. At the end of the contract, too, there was always the greatest difficulty in getting payment of the inevitable extras from the disgusted proprietor. In connexion with these extras, Mr. Muir protested against the practice of architects or measurers altering the contractors' prices without consulting them, and of submitting these to a clerk of works to be checked. They ought to be gone over with the contractor himself and adjusted. He maintained that in all contracts the selecting of an efficient inspector was very essential. Mr. Muir dwelt on the old custom of contractors measuring the work for themselves, which, he stated, was, of course, impossible in our city. This practice, he said, was still carried on in Australia, and apparently beneficially to not a few contractors. He advocated the strict adherence, where practicable, to the adopted modes of measurements and clear details in schedules as tending to prevent mistakes and misunderstandings, and spoke strongly against measurers endeavouring to get cheaper estimates by misleading descriptions in schedules. Mr. Muir vigorously deprecated the over-anxiety of contractors to secure, if possible, every contract that was issued, for the mere sake of leaving monuments to their memory. He held that no contractor should take a contract unless at a reasonable profit. The present keenness of competition was not conducive to good work. Every man should have time to eat, drink, and enjoy the fruits of his labour. In conclusion, adverting to municipal structures, Mr. Muir regretted that in the design of the new Art Gallery, erected by Glasgow funds, the gentlemen responsible should not have seen their way to employ Glasgow talent, of which, he contended, there was abundance; and that in connexion with the Jamaica Bridge, for the sake of a few thousands, the original broad scheme should have been abandoned for patchwork. A discussion followed, in which Mr. Keppie, Mr. Scott, Mr. Goldie, Mr. Howatt, Mr. M'Gilvray, Mr. Anderson, and Mr. M'Kenzie took part. On the motion of Mr. Paterson, a vote of thanks was passed to the Chairman, and the proceedings ended.

MONUMENTAL BRASS SOCIETY.—A meeting of this Society was held in the Herald's College (by kind permission) on the 4th inst. After the election of officers for the year and other formal business, a paper by Mr. T. Wareing, of Birmingham, entitled "Some Notes on a Brass-rubbing Tour in West Sussex," was read. A large collection of rubbings was exhibited in illustration. A brass inscription-plate, recently purchased in Canterbury, was also exhibited, and some rubbings of Belgian incised slabs.

SCHOOL OF ARCHITECTURE FOR WALES.—Mr. Thomas E. Ellis, M.P., addressing a meeting of the Welsh National Students' Society at Bangor on the 30th ult., delivered an address in the course of which he put in a plea for the establishment of a Welsh school of architecture. Mr. Ellis said he did not speak as an expert, but he was of opinion that the beautiful landscape of Wales was disfigured by too many ugly buildings quite out of keeping with the beauties of the landscape. The Welsh people had undoubted musical talent, though there was room for improvement in the matter of instrumental music, and he was convinced that the nation also possessed a great latent talent for architecture if it were only properly cultivated. He felt justified in taking that view of his countrymen's abilities from a consideration of the achievements of such men as Inigo Jones, Owen Jones, and Burne-Jones. It would be the function of such a school to explain and compare various styles of architecture, their relation to civilisation, their development or decay, and the causes of such growth or wane. It would be its function to teach geometry, the ground of architectural labours, and to so far deal with archæology as to show what application had been made of geometry to styles of architecture in various ages and in various circumstances of climate and of social life. It would teach perspective, and the art of economising resources by employing materials peculiar to various localities. It would also keep in view the principles applicable to the organisation and administration of labour among all those who at the university were fitting themselves to be useful to the State, to local communities, and to civic or religious societies. A Welsh professor of architecture would be a witness to the need for thought, and care, and conscience in the rearing of buildings worthy of the beautiful hills and fair valleys of Wales, and help to hold before the eyes of the Welsh people the need for the seven lamps of architecture, of increasing the influences for elevating public taste, and making architecture, like music, a popular and democratic art.

IMPOSING ON ARCHITECTS.—An architect, one of whose buildings had been illustrated recently in this journal, has received a pathetic begging letter signed "Thomas Stewart," stating that his family were in great destitution, and urging as a claim on the architect's kindness that the applicant had worked on the building illustrated in the *Builder*. On application to the contractor for confirmation of this, the latter replied that he had no knowledge of the man, who had never worked under him. It seems probable that this manner of appealing *ad misericordiam* to architects whose works have been illustrated in our columns is a system, and will be followed out in other cases, so that we caution architects against it.

THE BOUHON VENTILATING COWL.—This cowl, which is a French patent, is designed, as will be seen by the section, so that the large opening is always kept facing away from the wind, and the smaller opening in the apex of the cone, with its contracting passage, is supposed to act the part of an "aspirator" to the chimney. This it probably



will do, when there is a sufficient movement of the air. The deficiency of all these automatic ventilators is the same, viz., that they depend on the action of the wind, and do not act when there is no wind, which is when ventilation is most needed. As a cowl to prevent down-draught in a wind this ought to be effective.

ELECTRIC LIGHTING IN EDINBURGH.—At a meeting of the Edinburgh Town Council, on the 21st ult., the Cleaning and Lighting and Electric Lighting Committee recommended fifteen extensions of the electric lighting system, involving the use of 237 lamps, and an expenditure of 4,266*l.* The following are the districts:—(1) From Literary Institute to Salisbury-place; (2) Regent-road, from Regent-terrace to Abbeyhill Station; (3) from Royal Infirmary to Tollcross; (4) Dalry-road, from Haymarket to Ardmillan-terrace; (5) Fountainbridge, from Freer-street to Viewforth; (6) from Greenside to Pilrig; (7) Frederick-street to Comely Bank; (8) Hanover-street to Canonmills; (9) Cowgate, Grassmarket to St. Mary-street; (10) Dean Bridge; (11) Morrison-street; (12) side lanes, St. George's Church, Charlotte-square; (13) Pleasance and St. Leonard's streets; (14) St. Mary-street; and (15) Barclay Church to Comiston-road. Mr. Mackenzie moved the approval of the recommendation. He explained that generally their proposal was to cover the main arteries of the city. The extensions were distributed over the whole city. If they lit up the main thoroughfares then they had gone far enough in the meantime. The total capital expenditure involved was 11,850*l.*, taken at 5*o*/. a lamp. Professor Kennedy made the sum 45*l.* a lamp. The annual expenditure to the Lighting Committee would be 4,266*l.*, but from that had to be deducted the saving in the gas, which he put at one-third, so that there would be a net expenditure to the city of 2,844*l.* for the 237 lamps that were proposed. Mr. Walker seconded the motion for the approval of the report. As the result of the deliberations, it was resolved that the scheme should be carried out, with the exception of No. 7 (Frederick-street to Comely Bank) and No. 15 (Barclay Church to Comiston-road). In regard to No. 7 it was agreed, on a vote, that the extension should only be the length of Dean-street; while the extension No. 15 was, on a division, struck out of the scheme altogether.

REGISTRATION OF PLUMBERS.—At a recent public meeting of representatives of Devon and Cornwall, held in the Town Hall, Truro, under the presidency of the Mayor of Truro, the following resolutions were passed:—"That this meeting of master and operative plumbers, sanitary authorities, architects, and others of Truro, desires to record its opinion that the time has arrived when it is essential

to the protection and preservation of public health that the system of registration of plumbers, which has been established by the Worshipful Company of Plumbers, with the co-operation of various local representatives of the plumbers' craft and sanitary authorities, should receive the statutory powers which are necessary to secure the efficiency of the system." "That this meeting of master and operative plumbers, sanitary authorities, architects, and others of Truro and district, desires to call the attention of the Technical Instruction Committees throughout Cornwall to the advantages of starting and maintaining classes for educating and training those who are engaged in the plumbing trade, believing it will be beneficial to the public health."

CAPITAL AND LABOUR.

BLACKPOOL BUILDING TRADE.—The differences existing between the carpenters and joiners of Blackpool and their employers still continue. A meeting of the Master Joiners' and Builders' Association was held at the Palatine Hotel on Thursday last week, to receive a deputation from the Lancashire Federation of Building Trade Employers, which is now in extensive operation throughout the country. The chair was occupied by Mr. Wm. Eaves. The demands of the men are a new code of working-rules, together with an advance of 1d. per hour to the present 8d. paid, and in answer to this the masters have agreed to certain alterations in the present rules, with the offer of 8½d. per hour in the winter months and 8¼d. in summer. Up to the time of meeting no reply had been received from the Society. On the question of becoming affiliated with the Federation a unanimous assent was given, and the incorporation will be at once proceeded with. It is argued by the employers that the terms offered are considerably in advance of those paid in neighbouring towns.

BRIGHTON BUILDING TRADES' FEDERATION.—A half-yearly meeting of the members of the Brighton Building Trades' Federation was held on the 31st ult. at the Brighton Labour Club, Gloucester-place, the Chairman of the Federation, Mr. W. Harriott, presiding. The Secretary, Mr. Foot, having submitted a financial statement, which was adopted, some discussion ensued as to certain alterations to rules proposed by Mr. Cee. It was agreed to constitute sub-committees for legislation, organisation, and for grievances and arbitration; but upon a proposal to increase the number of delegates to the Federal Council to be sent from the various affiliated societies, there was considerable conversation as to the advisability of adopting the principle of proportional representation. Eventually it was resolved to adjourn the meeting for a month to permit of the societies considering the rules, and that at such adjourned meeting it should be competent to deal with any suggested alterations without previous notice.

LEGAL.

IMPORTANT JUDGMENT:

BUILDING ON DISUSED BURIAL-GROUNDS.

MR. JUSTICE STIRLING, in the Chancery Division on the 29rd ult., delivered a reserved judgment in the case of the Attorney-General *v.* the Trustees of London Parochial Charities and others, a case which came before him for trial on November 29 and 30 last, and a report of which appeared in the issue of the *Builder* for December 7. The action was brought by the Attorney-General at the relation of the Vicar and Churchwardens of the Parish Church of St. Botolph Without, Aldersgate-street, to restrain the defendants, the Trustees of London Parochial Charities, from building on certain plots of land situate on the south side of Little Britain, on the ground that such land formed part of a disused burial-ground, and that building upon it was prohibited by the Disused Burial-Grounds Act of 1884, that Act being passed after the Order in Council was issued for closing Metropolitan burial-places, and by which Act and by another Act passed in 1887 the term "burial-grounds" was defined to include any consecrated or unconsecrated ground which had been set aside for the purposes of interment. The question his Lordship had to determine was, first, whether the land in question had been used as a burial-ground, and next, whether it was within the terms of the Act of 1884, cap. 27, for the prevention of the erection of buildings on burial-grounds after the passing of the Act, and for the purposes of which numerous Orders in Council had been made. A further Act was passed in 1887, which suspended certain provisions in other Acts in certain places. The contention of the defendants was that the ground in question was never "a place set apart for interment," and had never been used as a graveyard. Their allegation was that the ground was the site of some old charnel-house, of which there were a great many in the early times in connexion with the monasteries, and that the Commissioners of Sewers had authority to deal with the land in question under, and by virtue of, the City of London Sewers Act of 1851, which Act gave the Commissioners express power to sell.

His Lordship, in the course of an elaborate written judgment, said that the first question was whether any part of the land as to which the dispute had arisen was shown to have been "at any time set apart for the purposes of interment." The meaning of these words had been the subject of judicial decision. Mr. Justice North and the Court of Appeal had determined in the case of *in re* Ponsford and Newport District School Board, that they do not necessarily involve actual user for the purposes of interment; land, therefore, though it might never have been actually used for the purposes of interment, was within the definition; on the other hand Mr. Justice North had held in the case of *in re* the Ecclesiastical Commissioners and City of London Brewery Company that land actually used for purposes of interment need not necessarily have been set apart for those purposes. In that case the land in question was the site of a church in which burials had taken place; but it was held that the site had not been set apart within the meaning of the definition, and might consequently be built upon. His Lordship then traced the title to the lands in question, commencing with a statement that the church of St. Botolph itself was, at the close of the fourteenth century, united to the deanery of St. Martin's-le-Grand, and that deanery was, on July 23, 1502, granted by Henry VII., to the abbot, prior, and convent of St. Peter's, Westminster. Continuing, his Lordship said that, seeing for a long period that the greater part of the area in question had been built over and used for purposes of an ordinary secular kind, he thought that the burden of proof rested strongly upon the plaintiffs, and that every reasonable presumption in favour of a good legal title in the defendants' ought to be made. The proper legal inference from the evidence appeared to be, not that the sites of the houses in question were ever set apart for the purpose of interments, but that interments took place there by the permission of some former owner who reserved to himself the right to deal with the land as he saw fit. The documentary evidence, as a whole, was inconsistent with the site having been part of the churchyard. As to the passage way, however, he thought, upon the evidence, that the plaintiffs had made out a *primâ facie* case for holding that the site formed, previously to 1640, part of the churchyard, and, consequently, was at one time set apart for purposes of interment. The defendants, however, contended that no order ought to be made, inasmuch as the case fell within an exception from the operation of the Act of 1884, under Section 5, which enacted that "nothing in this Act contained shall apply to any burial-ground which has been sold or disposed of under the authority of any Act of Parliament." Having regard to decisions of the late Vice-Chancellor Bacon and Mr. Justice North, in cases tried by those learned Judges, his Lordship said he held that Section 5 might apply to the sale to the Commissioners of Sewers of the City of London, notwithstanding that that sale did not take place until 1885. The result was that the action must be dismissed.

IMPORTANT BUILDING CASE:

IN THE COURT OF APPEAL.

THE case of Kirby *v.* the School Board of Harrogate recently came before the Court of Appeal, composed of Lords Justices Lindley, Kay, and A. L. Smith, on the appeal of the plaintiffs from a decision of Mr. Justice North in the Chancery Division in December last.

It appeared that the plaintiffs were the trustees of the will of a Mr. Watson, and the owners of some houses separated by a road through a piece of ground on which the defendants were erecting some schools for the purpose of accommodating about 1,200 children. Mr. Watson took a conveyance of land, including both the property, in respect of which the plaintiffs, as owners, were suing, and the land on which the schools were intended to be erected, and entered into certain restrictive covenants as to the whole land. The plaintiffs afterwards sold the property, on which the defendants are building, to a Mr. Sampson Fox, and took from him a restrictive covenant in the terms of the covenant contained in the conveyance to Mr. Watson. Mr. Fox sold his premises to the defendants by agreement without putting them to exercise their compulsory power to take the land. The defendants had express notice of the covenant. The plaintiffs moved for an interlocutory injunction till the trial, to restrain the defendants from building in contravention of the terms of the restrictive covenant. The material parts of the covenant were not to build within 30 ft. of the northern boundary of the property (except bay-windows and porches), and not to carry on any noisy or offensive trade or calling on the premises. The contention of the plaintiffs was that the carrying on of a school would be a breach of that covenant, and that the building of two pentagonal towers on the northern front of the school containing windows would infringe the building-line covenant. The plaintiffs admitted by their counsel that, on the authorities, if the defendants had acquired the land under their compulsory powers they would have had no remedy by injunction, but they would have been entitled to have any damage they sustained assessed under Section 68 of the Lands Clauses Consolidation Act, 1845. The whole question, therefore, in these circumstances turned upon the construction of Sections 19 and 20 of the Elementary Education Act, 1870. Section 19 enables the School Board "to purchase or take on lease any land and any right over land." The other section provides that the Lands Clauses Consolidation Act, 1845, and the amending Acts, should be incorporated with that Act, subject to certain exceptions not material in the present case. Then followed this proviso: "In construing those Acts for the purpose of this section the Special Act shall be construed to mean this Act, and the promoters of the undertaking shall be construed to mean the School Board, and land shall be construed to include any right over land." Mr. Justice North came to the conclusion and decided that the towers were not bay windows in the exception in the covenant, and that there was a breach of the restrictive covenant; but that learned Judge further held that the defendants, having purchased land for the purposes of their undertaking and in the legal exercise of their powers, it was immaterial in order to determine the rights of the plaintiffs, whether the purchase was compulsory or by agreement, and that the plaintiffs' only remedy was for compensation under Section 68 of the Lands Clauses Consolidation Act, 1845, and against this decision the plaintiffs appealed.

Their Lordships, after hearing arguments by counsel, affirmed Mr. Justice North's decision, and dismissed the appeal with costs.

Mr. Vernon Smith, Q.C., and Mr. Curtis Price appeared as counsel for the appellants; and Mr. Swinfen Eady, Q.C., and Mr. Micklam for the respondents.

WHAT IS A NEW BUILDING?

ILFRACOMBE DISTRICT COUNCIL *v.* R. G. A. BENOKE.

AT the Ilfracombe Petty Sessions on the 30th ult., Mr. Richard G. A. Benoke, owner and occupier of the "Ebrington Arms," Fore-street, was summoned by the District Council for erecting a new domestic building without sufficient air-space.

Mr. A. F. Seldon prosecuted, and Mr. J. P. Ffinch defended.

Mr. Seldon said it would not, he thought, be contended that the building had a sufficient quantity of air-space, and that he apprehended the only point was whether the "Ebrington Arms," as it now stood, was "a new domestic building." A section of the Public Health Act, 1875, defined a new building as the re-erecting of any building down to or below the ground floor. The building had been so interfered with as to bring it within the section he had read. Plans were submitted by defendant in January, 1895, and approved in May. The alterations were commenced in October by taking off the roof and building upwards. Two stories were added, after which alterations were begun downwards, which the Council held was an ingenious way of evading the by-law. An old wall had been removed to within 2 ft. of the street level, whereas the plans showed no alteration below 16 ft. of the level.

Mr. O. Prouse, Surveyor, said according to the plans the old walls were not to be interfered with. The roof was removed, and the walls taken down to within 11 ft. of the footway. Then the building was raised, after which alterations were made below the bressummer, the front wall being removed to within 2 ft. of the footway. There was not sufficient air-space behind the building, assuming it to be a new building, to comply with by-law 54.

Cross-examined: A pillar mentioned was shown in the plan, but not below the ground-floor.

Mr. Ffinch: But the basement is not shown on the plan.

Mr. Prouse, continuing, admitted that a new window was put in the place of an old one in the front of the house, but no new masonry was shown in the plans.

Mr. Ffinch: Surely masonry has to be removed and replaced in putting in a new window in place of an old one.

Witness, resuming, said he considered when defendant went below the ceiling of the ground-floor he interfered with the ground-floor.

By Mr. Dickenson: The ground-floor was raised 3 ft., and the alteration was shown in the plans.

Re-examined: Although a new window replaced an old one more masonry was removed than was necessary.

Mr. Bellamy, C.E., Consulting Engineer, Plymouth Corporation, agreed that the plans plainly showed it was not intended to take down the wall beyond 16 ft. from the footway, whereas at the south-east end the wall was taken down to 2 ft. above the street level. Everything between the ground-floor and the ceiling was included in the "ground-floor." More masonry had distinctly been taken out than was necessary for replacing the window, and it could only have been done for strengthening the superstructure. If the work was continued in the way it had been commenced practically nothing of the old building would be left, and he should define the building as "a new building."

Mr. Ffinch said the Act was adopted in 1851, but the building was older, and therefore exempt. If the contention of the District Council was correct, the owner of the property could not re-erect a building 10 ft. high, because it was clearly impossible to comply with the by-law respecting air-space. That could never have been the intention of the Legislature. His contention was that "ground floor" meant what was on the level of the street. The meaning of "ground floor" in the latest encyclopedia was "that which is on a level, or

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*New Church	St. Thomas Church Committee	100*l.* and three at 25*l.* each	June 1

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Electricity Works	Harrogate Corp.	S. Stead, Surv. Municipal Offices, Harrogate	Feb. 10
Sewerage Disposal Works	Bury (Lancs) Corp.	J. Cartwright, Boro' Engr.	Feb. 11
Business Premises, High-street, Southend	A. Tolhurst	Jas. Thompson, Archt. 37, High-street, Southend	do.
Three Houses, Mallinson-street, Westborough, Dewsbury	,,	C. H. Marriott & Son, Archt. West Park-st. Dewsbury	do.
Three Houses, &c. Longman-road, Barnsley	,,	Herbert Crawshaw, Archt. 13, Regent-st. Barnsley	do.
*Kerbing, Tar Paving, &c.	Lewisham B. of W.	The Surveyor, Vestry Hall	do.
*Underground Sanitary Conveniences	Southend-on-Sea Corp.	H. Harlock, Clarence-rd. Southend	do.
*Pipe Sewer	do.	do.	do.
*Works and Materials	St. John (Hampstead) Vestry		
*Works and Materials	Battersea Vestry	The Surveyor, Vestry Hall	Feb. 12
Two Villas, Western-road, Cork	,,	The Surveyor, Lavender-Hill, S.W.	do.
Wesleyan Chapel, Grove-road, Harrogate		D. J. Coakley, Archt. 1, Charlotte Quay, Cork	do.
Sewerage Works, Prestwick, N.B.	Ayr County Council	W. J. Morley, Archt. 269, Swan-arcade, Bradford	do.
Sewer Extension, Crispin-lane, Stanaty	Wrexham R.D.C.	H. V. Eaglesham, C.E. Ayr.	do.
Buildings at Swan Inn, Hunslet-road, Leeds	Cowbrough & Co.	J. Price Evans, Engineer, Argyle-chambers, Wrexham	do.
Street Works, Christ Church-terrace, &c.	Stockport Corp.	Thos. Winn, Archt. 90, Albion-street, Leeds	do.
Improvement Works, Ada-street, &c.	Halifax Corporation	J. Atkinson, C.E. Borough Surveyor	do.
Additions to Mortal Man Hotel, Troutbeck, Windermere	,,	E. R. S. Escott, C.E. Town Hall	Feb. 13
Additions, &c. to Guest Hospital, Dudley	,,	Jno. Stalker, Archt. 57, Highgate, Kendal	do.
Farmhouse, Market Weighton, Wold, Yorks	,,	W. Henman, Archt. 31, Cannon-st. Birmingham	do.
Church (Scotch), Berwick-on-Tweed	,,	Hawe & Foley, Archts. North Bar-st. Beverley	Feb. 14
*Chimney Shaft	Croydon Town Council	Wm. Gray, Archt. 2, Ivy-place, Berwick-on-Tweed	do.
Distillery, Coleburn, Elgin, N.B.	,,	Boro' Engr. 8, Katherine-street, Croydon	do.
Primitive Methodist Chapel, Freethorpe, Great Yarmouth		C. C. Doig, Archt. Elgin	do.
School, St. John's Green	Colchester Sch. Bd.	A. S. Hewitt, Archt. 10, Regent-st. Yarmouth	do.
Eight Houses, Court and Lancaster-streets, Carlisle	Mr. Rickerby	Goodey & Cressall, Archts. Victoria-chambers, Colchester	do.
Villa Residence, Dinas Powis, Cardiff	F. W. Smart	H. H. Hodgkinson, Archt. Scotch-street, Carlisle	do.
Paving, &c. Wellhouse-street	Barnoldswick U.D.C.	W. H. D. Caple, Archt. 1. St. John's-square, Cardiff	Feb. 15
*Alterations to Church, Plaistow	Committee Congregational Church	T. Biker, Surveyor's Offices	do.
*400 Tons of Quartzite	Gravesend Town Coun.	J. T. Newman & Jaques, 2, Fen-court, E.C.	do.
National Schools, Penryn, Cornwall	,,	Borough Surveyor	do.
		Rev. G. Evans, Penryn	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Church Spire, Carrigrohane, Ireland	,,	W. H. Hill, Architect, 28, South Mall, Cork	Feb. 15
Schools, Lower Darwen	Blackburn and District Church School Association	Stones & Gradwell, Archts. 10, Richmond-terrace, Blackburn	Feb. 17
Council Offices, Market-place	Meltham (Yorks) U.D.C.	Wm. Carter, Station-st. Meltham	do.
Chapel, Bank-place, Portmadoc, N. Wales	Garth C. M. Chapel Committee	Roberts & Son, Archts. Portmadoc	do.
Sewers, &c.	Ashby-de-la-Zouch (Leicester) U.D.C.	G. H. Lilley, Surveyor, Council Offices	do.
Hospital, Mortuaries, &c. Manston, Hall	Leeds Corp.	City Engineer	Feb. 18
Two Villas, East End Park, Cupar Fife, N.B.	,,	D. Storrar, Archt. Cupar Fife	do.
*Works and Materials	Poplar Bd of Works	The Surveyor, 117, High-street, Poplar	do.
*Works and Materials	Tottenham U.D.C.	P. E. Murphy, Council Offices	do.
*Disinfector House at Sewage Works	do.	do.	do.
*Hard York Paving	do.	do.	do.
Chapel and Schools, Church-street, Morley, Yorks		Walter Hanstock, Archt. Branch-road, Batley	Feb. 19
*Granite Paving	Greenwich Bd. of W.	141, Greenwich-road, S.E.	do.
*Granite Paving	do.	do.	do.
*Wood Paving	do.	do.	do.
Surveyor's Materials	Rawtenstall (Lancs) Corporation	Borough Surveyor	Feb. 20
*Supply of Granite	Cromer U.D.C.	A. F. Scott, Church-street, Cromer	Feb. 24
*Works and Materials	Hendon U.D.C.	S. S. Grimley, Public Offices	do.
*Erection of Primitive Methodist Chapel	Committee	M. S. Barney, Wycombe-road, Stokenchurch	do.
*Construction of Engine House	Shoeburyness U.D.C.	J. Mansergh, 5, Victoria-street, S.W.	Feb. 25
*Supplies	West Ham Council	Borough Engineer, Town Hall, Stratford	do.
*Works and Materials	St. Mary, Islington Vestry	Vestry Hall, Upper-street, N.	Feb. 27
*Construction of Aqueduct	Birmingham Corp.	J. Mansergh, 5, Victoria-st. Westminster	Mar. 4
Chapel, Trafalgar-square, Ashton-under-Lyne	Methodist New Connexion	J. H. Burton, Archt. Warrington-st. Ashton-under-Lyne	No date
School, Abergavenny	Intermediate Education Committee	E. A. Johnson, Archt. Abergavenny	do.
Road Improvements, Granville-street Shops and Warehouse, Sunbridge-road, Bradford	Gloucester R.D.C.	L. G. H. Mayer, Clerk	do.
*Sanitary Fittings and Drainage	Mrs. Anderson	Empsall & Clarkson, Architects, 55, Tyrrel-st. Bradford	do.
		Peak & Lunn, 36, High-st. Guildford	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Clerk of Works	Straits Settlements	150 dollars per month, &c.	Feb. 10
*Clerk of Works	Erpingham R.D.C.		Feb. 13
*Sanitary Inspector	Plumstead Vestry	Commence 104*l.*	Feb. 21
*Buildings Inspector	Bournemouth T. C.	120*l.* rising to 150*l.*	Feb. 24

Those marked with an asterisk (*) are advertised in this Number. *Competition, p.* iv. *Contracts, pp.* iv., vi., viii., *&* x. *Public Appointments, pp.* xviii. *&* xxi.

nearly so, with the exterior ground." They could not call the ceiling of a room the "ground floor." Having quoted cases to show that what had been done did not constitute the erection of a new building, Mr. Ffinch said that if he showed that the plans passed by the Council had been adhered to, there could be no offence against the by-law.

Mr. F. W. Petter, architect, said the alterations outside the plans were not material. He would call what had been done "alterations and additions." Cross-examined: A portion of the parapet wall of the south front was rebuilt, as the old one was apparently not strong enough to carry the building. He did not agree with Mr. Bellamy that more of the basement wall had been taken out than was necessary for the new window.

Mr. J. Price, builder, gave evidence to the effect that the plans had been adhered to except in minor instances. The bressummer was not for the purpose of allowing new work below.

Mr. Arnold Thorne, architect, stated that the plans had only been departed from in unimportant details.

After a retirement the Bench said they were of opinion that the case must be dismissed. No order would be made as to costs.

CASE UNDER THE PUBLIC HEALTH (LONDON) ACT.

MR. THOMAS BEVAN on Monday moved *ex parte*, before a Divisional Court of Queen's Bench, on behalf of the Vestry of Hackney, for a rule *nisi* calling on the Metropolitan Police Magistrate for North London to show cause why he should not state a case. The ground on which the application was based was as follows:—

On August 1 last a summons was taken out against the owner of 109, Southgate-road, Hackney, for failing to obey a notice requiring him to make proper sanitary arrangements for the house, it being one in which there was no water-closet of any kind. It appeared that the tenants had to enter on a neighbour's premises through a hole broken in the garden-wall for the purpose of making use of the sanitary conveniences there. The Magistrate had adjourned the matter and inspected the premises, and on August 7 the notice was proved and the defect was also proved. It was alleged that the owner had contracted with the tenant to provide what was necessary, and the Magistrate, thinking that he should not interfere, adjourned the matter to December 26, and again to January 2 last. The Magistrate then asked whether the tenant would bring an action to compel the owner to do the work, but the tenant declined to do so, alleging that it was the duty of the sanitary authority to see to the matter. The Magistrate thereupon dismissed the summons. It was contended that the Magistrate ought to have convicted as soon as the conditions precedent making the statute applicable had been proved—viz., the Public Health (London) Act, 54 and 55 Vic., c. 76, Section 37, Sub-section 3.

The Court granted a rule.

BUILDING CASE IN THE COURT OF APPEAL:

DISAGREEMENT OF THE JUDGES.

THE case of Macrory *v.* Gibbon came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Lopes and Rigby, on Tuesday last, it being the appeal of the defendant, Mr. Henry Gibbon, the owner of a block of residential flats in the Moscow-road, W., from a decision of Mr. Justice Wright in the Queen's Bench Division, whereby the defendant was ordered to pull down a part of the building in dispute as being erected in breach of an agreement dated September 12, 1894.

The facts are shortly as follows:—The plaintiff, in 1872, purchased his house in Ilchester Gardens, and lived there until four years ago, since when it had been to let. When the house was bought, and down to within the last year or two, there were only small cottages in the Moscow-road, and although the kitchen, which was at the back, was always dark, the buildings in the Moscow-road in no way affected the light of the plaintiff's back premises. The lease of the cottages having fallen in, the defendant purchased the land and commenced building the flats in question. The plaintiff, Mr. Macrory, and a neighbour, Mr. Heath, when they discovered that a part of the new buildings came so close up at the back as seriously to interfere with their light and air, entered into a correspondence with the defendant, alleging that he was encroaching on their rights. This the defendant denied, but, as a compromise, an agreement was finally entered into between the plaintiff, Mr. Heath, and the defendant, on September 12, 1894, clearly defining, as it was thought, within what lines the new buildings, which by that time had been got on with a good way, should be confined. By the agreement the defendant undertook not to build in such a way as to prevent the plaintiff, if he thought proper, opening windows overlooking the defendant's well. The plaintiff considered that this gave him a right to open a new window in the kitchen, which he had long intended to do, overlooking the defendant's area or well, which, owing to the way in which the building had been erected, it was found could not now be done. The defendant, however, contended that, having regard to the height of the buildings at the time, such a construction could not be placed on the agreement, and also that there was no agreement at all on his part that the "well" should be open from the ground, and, further, that the buildings were exactly in accordance with plans that had been shown to the plaintiff's solicitor when the agreement was made. Mr. Justice Wright held that the true construction of the agreement was that contended for by the plaintiff, and with the consent of all parties, his Lordship directed that that part of the building in dispute should be pulled down within three months unless an appeal was entered within the usual time, when the order should stand over pending the judgment of the Court of Appeal.

Mr. Alfred Cock, Q.C., and Mr. C. Munroe appeared as counsel for the appellant (the defendant) and Mr. T. T. Bucknill, Q.C., M.P., and Mr. Manisty for the respondent (the plaintiff).

At the conclusion of the arguments of counsel the Master of the Rolls said that he came to the conclusion that the defendant's construction of the agreement was the right one, and that the appeal ought to be allowed. However, Lords Justices Lopes and Rigby decided that Mr. Justice Wright's decision on the construction of the agreement was the right one, and that the appeal ought to be dismissed.

The appeal was, therefore, dismissed with costs, and the judgment of the Court below stands.

It was arranged that the execution of the mandatory injunction granted by Mr. Justice Wright should be stayed for one month, with the view to an appeal by Mr. Gibbon.

MEETINGS.

FRIDAY, FEBRUARY 7.

Architectural Association.—Mr. Sidney H. Wells on "Technical Institutes." 7.30 p.m.

SATURDAY, FEBRUARY 8.

Architectural Association.—First Spring Visit, to the National British Gallery, Grosvenor-road, Millbank. 3 p.m.

MONDAY, FEBRUARY 10.

Royal Academy of Arts.—Lectures on Architecture, by Professor Aitchison, A.R.A.—"Romanesque Architecture." II. 8 p.m.

Society of Arts (Cantor Lectures).—Dr. J. A. Fleming, F.R.S., on "Alternate Current Transformers." IV. 8 p.m.

Liverpool Architectural Society.—Mr. H. Longden on "Some Works of the late Mr. Sedding." (With Lantern Slides.) 6.30 p.m.

Leeds and Yorkshire Architectural Society.—Mr. C. E. Mallows on "Architectural Drawings—Competition and otherwise."

TUESDAY, FEBRUARY 11.

Institution of Civil Engineers.—Mr. Alfred Ephraim Hunt on "The Manufacture of Aluminium by Electrolysis; and the plant at Niagara for its Extraction." 8 p.m.

Carlisle Architectural, Engineering, and Surveying Society.—Mr. P. F. Ruthven on "Modern Development of Water Power"—the Niagara Scheme."

London School of Economics and Political Science (9, John-street, Adelphi).—First of six lectures on "Rating," by Mr. E. J. Harper. 6.45 p.m.

WEDNESDAY, FEBRUARY 12.

Sanitary Institute.—Discussion to be opened by Dr. S. Monckton Copeman on "The Influence of Subsoil Water on Health." 8 p.m.

Society of Arts.—Mr. F. A. Anderson on "Water Purification by Means of Iron." 8 p.m.

Edinburgh Architectural Association.—Discussion on Sanitation, to be opened by Dr. R. Rowand Anderson, the President. 8 p.m.

Northern Architectural Association.—Mr. P. Hobbs on "Concrete Construction." 7.30 p.m.

THURSDAY, FEBRUARY 13.

Royal Academy of Arts.—Lectures on Architecture, by Professor Aitchison, A.R.A.—"Romanesque Architecture." III. 8 p.m.

Society of Arts (Indian Section).—Sir James Broadwood Lyall on "Punjab Irrigation—Ancient and Modern." 4.30 p.m.

Society of Antiquaries. 8.30 p.m.

Institution of Electrical Engineers.—Continuation of Discussion on (1) "The Electric Wiring Question," by Mr. F. Bathurst; (2) "Concentric Wiring," by Mr. Sam. Mavor. 8 p.m.

FRIDAY, FEBRUARY 14.

Institution of Civil Engineers (Students' Meeting).—Mr. Sydney Thow on "The Construction of the Molong to Forbes Railway, New South Wales." 8 p.m.

Institution of Junior Engineers.—Mr. F. J. Bancroft, B.Sc., on "The Stability of Tall Chimneys." 8 p.m.

York Architectural Society.—Mr. A. H. Claypoole on "The Ventilation of Buildings."

SATURDAY, FEBRUARY 15.

Edinburgh Architectural Association.—Visit to (1) Electric Lighting Station, Dewar-place; (2) 11, Drumsheugh-gardens; (3) 28, Drumsheugh-gardens.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

25,356.—CEMENT: *R. Stone.*—This patent relates to a method of manufacturing cements, plasters, and the like, whereby the finished material is prevented from bursting or cracking—a common defect in cements containing lime. The improved process consists in mixing together loam, silica, or sand and rock, or rocky chalk limestone in a wet or pulpy state. The mixture is then burned by a forced blast in a special shaped furnace, and afterwards ground to powder. When made into blocks the material is placed in moulds and compressed by passing a roller over it.

4,175.—DOORS: *P. King.*—Doors of extreme lightness are constructed to resemble those of ordinary weight by making the framework hollow and strengthening same by thin internal pieces arranged at short distances apart, and parallel or diagonally arranged to form a zigzag. The panels are similarly constructed.

4,272.—CASEMENTS: *W. Voulten.*—In the construction of casement a hanging style is interposed between the casement and frame on the hinged side. The casement is hinged to the hanging style, and the latter to the casement frame. By making the bead on the opposite side removable, the window may be opened either inwards or outwards.

5,766.—LADDERS: *C. Endriss.*—An adjustable lean-to device for ladders, to be used where the ladder head cannot be conveniently supported, as in cleaning windows, &c. Consists of two laterally extending metal bars, sliding upon each other, and capable of being adjusted to vary the width of bearing. These supports are connected to the ladder by means of adjustable shoes, which can be fixed in any position on the uprights of the ladder.

13,788.—PAVING BLOCK: *E. Edwards.*—In wood-paving blocks a dovetail groove is cut in the surface, and filled with cement grouting or similar substance.

22,442.—SCAFFOLDINGS: *G. Lucas.*—Deals with screw hold-fasts for securing planks to the side rails of ladders for supporting scaffoldings. Consists of a clamp for receiving the plank or board, and suitable screws for holding such in position when placed on edge. A movable shoe adapted to be fixed against the rungs of the ladder is securely held in position by means of screws, so that the side-rails of the ladder are firmly clamped between the two portions of the device. A lower clamp to prevent lateral motion may also be affixed.

NEW APPLICATIONS FOR LETTERS PATENT.

JANUARY 20.—1,338. J. Walker, Gulley Trap.—1,346, W. Cotter, Ventilators.—1,389, T. Simmonds, Fastener and Opener for Skylights, &c.—1,408, G. Falconar, Blocks or Slabs for Flooring, Paving, or in Step or Staircase, or Wall Construction, &c.

JANUARY 21.—1,422, D. & A. Hall, Saws or Saw-blades for Sawing and Dressing Stone, &c.—1,431, F. Borrisson, Window Sashes.—1,432, T. Rendle, Double-bodied Chimney Top.—1,471, C. Batcock and J. Kenyon, Opening and Closing Windows, Ventilators, &c.—1,504, M. Reutt, Nails.

JANUARY 22.—1,525, J. Day, Water-closets.—1,526, J. Williams, Water-closet Seat.—1,531, A. Walker, House Bell.—1,541, G. Wylie, Window-sashes.—1,546, C. Erlinghagen, Construction of Roofs or Ceilings of Buildings.—1,589, C. Bayer and P. Scherbner, Folding Gate.

JANUARY 23.—1,621, M. Clatterbuck, Collapsible Section Case or Wrapper for Glazing Sections.—1,626, W. Horsfall and R. Berry, Construction of Floors, Platforms, &c., for Public or other Buildings.—1,635, J. Ingram, Fittings for Sliding Windows.—1,640, W. Bennett, Cowl.—1,646, H. Arnhold, Gasaliers and other Pendant Lights.—1,647, W. Schonheyder, Siphon Discharge Cisterns.—1,649, F. Reinisch, Water-closets.—1,670, J. Hughes and J. Preece, Spindles and Knobs for Door-knobs.—1,680, W. Johnson, Firegrates.

JANUARY 24.—1,686, J. Martin, Detachable Socket in Connexion with Stoneware Drain-pipes.—1,723, R. Fuller, Ventilator.—1,732, J. Rickard, Dovetail-cutting Machines, &c.—1,756, A. Glover, Venetian Blinds.—1,766, A. Culpin, Door-knockers.

JANUARY 25.—1,785, S. Russell, Wastes of Baths, Lavatory-basins, &c.—1,794, J. Ormrod, Kiln for use in the Manufacture of Bricks, Terra-cotta Goods, Tiles, &c. 1,799, F. Kupper, Supporting Rods for Wood Piles.—1,833, A. Jones and J. Day, jun., Chandeliers. Gasaliers, Gaspendants, Gas-brackets, &c.—1,835, K. McKenzie, Cowls for Chimneys or Shafts.—1,836, H. Piquet, Flush Bolt-locks.

PROVISIONAL SPECIFICATIONS ACCEPTED.

23,782, M. Adams, Hinged Seats and Flush-pipe connexions for Closets.—24,793, E. Hentsch, Door-bolt.—201, F. Trier, Machinery for Working Stone.—470, J. Hannah, Fire-grates.—509, S. Hazeland, Chimney-pots.—622, H. Dalrymple-Hay, Tunnelling and Tunnelling Apparatus.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

1,631, M. Syer, Syphon Flushing-tanks.—3,402, M. Donne and C. Mathias, Hinges for Self-closing Doors, &c.—4,283, W. Steele, Securing Doors.—5,534, H. Norfolk, Sash Windows.—11,470, F. Kessler, Springless Automatic Door-closing Device.—16,398, K. Deneys, Pigments or Lakes Suitable for the Manufacture of Wall-papers.—23,024, J. Griffin and W. Pinchbeck, Waste Preventer.—24,486, M. Aspinall, Marked Drain Pipes.

PRICES CURRENT OF MATERIALS.

TIMBER			TIMBER *continued*.		
Greenheart, B.G.	ton	8/0/0 c/0/0	Satin, Porto Rico	0/0/6	0/1/6
Teak, E.I.	load	10/0/0 16/0/0	Walnut, Italian	0/0/3	0/0/7
Sequoia, U.S. ft. cu		1/10 2/0			
Ash, Canada load		3/5/0 4/10/0	METALS		
Birch, do.		2/15/0 4/15/0	Iron—Pig, in Scotland	ton	2/7/0 0/0/0
Elm, do.		4/0/0 5/5/0	Bar, Welsh, in London		5/12/6 5/15/0
Fir, Dantsic, &c.		2/0/0 3/10/0	Do. do. at works in Wales		5/2/6 5/5/0
Oak, do.		2/15/0 4/15/0	Do. Staffordshire, in London		6/0/0 6/10/0
Canada		6/10/0 8/0/0	COPPER—British cake and ingot		47/0/0 47/5/0
Pine, Canada red		0/0/0 0/0/0	Best selected		48/0/0 48/5/0
Do. Yellow		2/15/0 5/0/0	Sheets, strong		54/0/0 0/0/0
Lath, Dantsic, fath		4/10/0 5/10/0	Chili bars		43/18/9 44/3/0
St. Petersburg		5/0/0 6/10/0	YELLOW M'TAL lb		0/0/4½ 0/0/4⅝
Wainscot, Riga, &c., log		2/15/0 5/0/0	LEAD—Pig		
Odessa, crown		2/15/0 5/0/0	Spanish	ton	11/6/3 11/7/6
Deals, Finland			English com. brands		11/7/6 11/10/0
2nd & 1st std		7/0/0 8/10/0	Sheet, English, 6 lbs. per sq. ft. and upwards		12/10/0 0/0/0
Do. 4th & 3rd		7/0/0 8/0/0	Pipe		12/10/0 0/0/0
Do. Riga		7/0/0 8/0/0	ZINC—English sheet	ton	18/5/0 18/10/0
St. Petersburg, 1st yellow		9/10/0 12/0/0	Vieille Montagne		18/15/0 0/0/0
Do. 2nd yellow		7/10/0 9/0/0	TIN—Straits		61/2/6 61/12/6
Do. white		8/0/0 9/10/0	Australian		61/17/6 62/7/6
Swedish		7/0/0 15/10/0	English Ingots		64/0/0 64/10/0
White Sea		7/15/0 14/15/0	Banca		61/0/0 61/5/0
Canada, Pine 1st		21/0/0 25/0/0	Billiton		60/0/0 60/5/0
Do. 2nd		16/0/0 17/0/0			
Do. 3rd, &c.		8/0/0 10/0/0	OILS.		
Do. Spruce, 1st		9/0/0 10/10/0	Linseed	ton	19/5/0 20/0/0
Do. 2nd		6/15/0 7/10/0	Cocoanut, Cochin		27/0/0 0/0/0
New Brunswick		6/0/0 7/0/0	Do. Ceylon		22/15/0 23/5/0
Battens, all kinds		5/0/0 20/0/0	Palm, Lagos		22/0/0 0/0/0
Flooring boards, sq., 1 in. prep. 1st		0/9/6 0/14/6	Rapeseed, English pale		25/0/0 25/15/0
Do. 2nd		0/6/6 0/11/6	Do. brown		23/15/0 24/5/0
Other qualities—		0/4/6 0/7/6	Cottonseed ref.		17/0/0 17/10/0
Cedar, Cuba	ft.	/4 /4½	Oleine		19/10/0 20/10/0
Honduras, &c.		/3½ /4½	Lubricating, U.S.		6/6/0 9/6/0
Mahogany, Cuba		/3½ /6	Do. black		4/9/0 6/6/0
St. Domingo, cargo av.		/3½ 1/0	TAR—Stockholm	barrel	1/0/0 0/3/0
Mexican do. do.		/4 /4½	Archangel		0/14/6 0/15/0
Tobasco do. do.		/4½ /6			
Honduras do.		/4½ /6			
Box, Turkey	ton	4/0/0 15/0/0			
Rose, Rio		7/0/0 16/0/0			
Bahia		6/0/0 15/0/0			
Satin, St. Domingo		0/0/5 0/1/0			

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender: and we cannot publish lists in which the accepted Tender is below £100, unless in some exceptional cases and for special reasons.]

BODMIN.—For additions to the Cornwall County Lunatic Asylum, for the Committee of Visitors. Mr. W. J. Jenkins, architect, Bodmin. Quantities by the architect:—

Shelley & Ham	£5,748	Lethbridge & Son	£4,750
W. Gibson	5,540	J. R. Isbell	4,540
Teppett & Sturbridge	5,475	Jonathan Marshall, Plymouth *	4,488
John Colliver	5,311 17	Horton & Co.	3,875
Lapthorne & Co.	5,150	Goad & Co. (a week late)	4,583
Treham & Son	5,050	* Accepted.	
Grose & Son	4,800		
Bennett, Walters, & Borlase	4,772 10		

[Architect's estimate, £4,680.]

LEEK.—New business block for Messrs. Overfield & Co. Messrs. W. Sugden & Son, architects, Leek and Hanley. Quantities by the architects:—

Contract No. 1.

C. Cornes	£495	Thomas Grace	£450
Sampson Salt	490	John Fielding	446
Jas. Heath	453	Wm. Hall *	423

Contract No. 3.

Barr	£214 10	Stevenson	£169 10
Robinson	188 15	Heath	161 10
Ratcliffe	186 15	Brew	150 0
Phillips	184 15	Carding *	149 0

Contract No. 2 (Woodwork).—The Proprietors execute themselves.
* Accepted.

CHINGFORD.—Accepted for new drainage, and other alterations, improvements, and additions at Little Friday Hill, for Messrs. Budd, Brodie, & Hart, Bedford-row, W.C. Mr. Chas. E. Gritton, surveyor, of London and Selhurst:—
Winser & Co., 52, Buckingham Palace-road, S.W. £125

LONDON.—For the erection of the "Rising Sun" public-house, and shop adjoining, in the Romford-road, Forest Gate, for Mr. Lewis Ascott. Mr. Latham A. Withell, architect:—

Norton	£10,852	Stevens	£9,687
Charteris	10,537	Mattock	9,479
Hosking	10,359	Lacelles	9,435
Holliday & Greenwood	9,949	Hearle & Farrow	9,340
Holloway	9,815	Edwards & Medway	9,148
Smith	9,722		

LONDON.—For pulling down eight cottages, clearing the site, and rebuilding seven cottages in George's-place, Hoxton, N., for Mr. W. Hughes. Mr. W. Nicol, architect, 148, Church-road, Islington:—

Ivory	£1,750	Weibking & Sons (amended tender) *	£947 18
King	1,525		

* Accepted.

LONDON.—The London School Board, on December 19, 1895, agreed to accept the tender of Mr. F. T. Chinchen, of Kensal-green, amounting to £1,549, for carrying out works at the Stanhope-street School, Euston-road. The Committee have since received a letter from Mr. Chinchen, expressing regret that he has made a clerical error in his tender, and asking to be relieved of the contract. Under the circumstances the Committee recommend that the second lowest tender, that of Mr. F. G. Minter, John-street, Westminster, amounting to £1,560, should be accepted.

LONDON.—For providing and fixing a small system of low-pressure hot-water apparatus for the supplementary warming of the hall and two large class-rooms, including cloak-rooms, at the school now being built in Bow Creek, Orchard-place, Blackwall, for the School Board for London. Mr. J. T. Bailey, Architect:—

G. Davis	£156	Wontner-Smith, Gray, & Co.	£126 15
Z. D. Berry & Sons	149	Vaughan & Brown, Ltd.	100
J. & F. May	134	Duffield & Co., Slough *	100

* Accepted.

LONDON.—For providing two sliding glazed partitions in the infants' department of the Beethoven-street School, Queen's Park, for the School Board for London. Mr. T. J. Bailey, Architect:—

G. H. Sealy	£250	G. Neal	£148
J. Christie	228 17	W. Brown	140
G. Lyford	183	F. T. Chinchen, Kensal Green *	135
W. R. & A. Hide	180 10		
H. C. Clifton	168		

* Recommended for acceptance by the Works Committee.

LONDON.—For providing and fixing two sliding glazed partitions in the boys' and girls' departments of the William-street School, Hammersmith-road, and also for fitting up the chemical laboratory, for the School Board for London. Mr. T. J. Bailey, Architect:—

J. Garrett & Son	£290	W. Hammond	£258
J. Christie	287 5	F. T. Chinchen, Kensal Green *	255
G. H. Sealy	285		

* Recommended by the Works Committee for acceptance.

LONDON.—For the enlargement of the Dulwich Hamlet School Turney-road, Dulwich, by 250 places, and for other works, for the School Board for London. Mr. T. J. Bailey, Architect:—

W. King & Son	£6,871	J. Longley & Co.	£5,148
W. Pattinson & Sons	5,634	J. & C. Bowyer	5,129
Atherton & Dolman	5,563	Peacock Bros.	5,126
Lathey Bros.	5,465	Holliday & Greenwood	4,974
B. E. Nightingale	5,456	J. & M. Patrick, Rochester *	4,700
G. E. Wallis & Sons	5,361		

* Recommended for acceptance by the Works Committee.

LONDON.—For providing the necessary rooms for manual training, a chemical laboratory, and a drawing class-room, at the school in Surrey-lane, Battersea Bridge-road, for the School Board for London. Mr. T. J. Bailey, Architect:—

Johnson & Co.	£4,495	B. E. Nightingale	£4,056
Hart Bros.	4,346	J. & C. Bowyer	3,998
Holloway Bros.	4,268	G. E. Wallis & Sons	3,996
D. Charteris	4,264	Holliday & Greenwood	3,934
W. Downs	4,173	J. Marsland, Walworth *	3,915
Lathey Bros.	4,155		

* Recommended for acceptance by the Works Committee.

LONDON.—For providing additional accommodation in connexion with the Hackney Divisional Offices, Homerton-terrace, and for other work, for the School Board for London. Mr. T. J. Bailey, Architect:—

H. Knight & Son	£1,839	Vernall, Danes & Co.	£1,502
W. Gregar & Son	1,707	T. White & Son	1,498
C. Dearing & Son	1,705	D. Charteris	1,447
J. Grover & Son	1,686	W. Shurmur, Upper Clapton *	1,395
C. Cox	1,666		
McCormick & Sons	1,591		

* Recommended for acceptance by the Works Committee.

LONDON.—For erecting a combined cookery and laundry centre in connexion with the Haseltine-road school, Lower Sydenham, and for other works, for the School Board for London. Mr. T. J. Bailey, Architect:—

W. Downs	£1,899	Jas. Smith & Sons	£1,609
E. Proctor	1,762 6	E. Triggs	1,598
Garrett & Son	1,727	J. & G. Bowyer	1,563
W. King & Son	1,709	W. Akers & Co., South Norwood *	1,525
J. Otway	1,691		
F. G. Minter	1,675	Mid-Kent Building and Contracting Works, Ltd.	1,510
A. Black & Son	1,663		

* Recommended for acceptance by the Works Committee.

LONDON.—For providing and fixing four sliding-glazed partitions in the boys' and girls' departments of the Wolverley-street School, Bethnal Green, and for other work for the School Board for London:—

G. Munday & Son	£376	W. Martin	£290
D. Gibb & Co.	369	T. White & Son, Bow *	266
Staines & Son	297		

* Recommended for acceptance by the Works Committee.

LONDON.—For road-widening and sewerage works, Archway-road, Highgate, for the Hornsey District Council. Mr. E. J. Lovegrove, Engineer and Surveyor:—

T. Williamson & Sons	£2,813 19	T. Adams	£1,985
W. Griffiths	2,546 16	F. A. Jackson & Son, 22, Stroud Green-road *	1,965
Geo. Bell	2,475		

* Accepted.

LONDON.—For erecting a warehouse on the Albert Embankment, S.E., for Messrs. Doulton & Co. Messrs. Waring & Nicholson, architects, 55, Parliament-street, Westminster:—

J. Marsland	£1,092	C. Ansell	£1,050
Higgs & Hill	1,084	T. Lapthorne & Co. *	1,049

* Accepted.

LONDON.—Accepted for alterations and additions to premises at 148 and 150, St. John's-street, Clerkenwell, for Mr. G. Hopkins:—
John Weibking & Sons £446

MANCHESTER.—Accepted for erecting dwelling-house at Didsbury, near Manchester, for Mr. F. H. Collins, M.D. Mr. W. Cecil Hardisty, architect, Queen's Chambers, John Dalton-street, Manchester:—
F. & E. Haynes, Moss Side £1,200

LONDON.—For river walls in the Parish of Fulham, and also for making-up and paving streets as fellows, for the Vestry of Fulham. Mr. Charles Botterill, Engineer and Surveyor :—

	Hestercombe Avenue Sec. I.					*Dorncliffe Road.* Sec. II.				
	Roadway.	York.	Victoria.	Adamant.	Imperial.	Roadway.	York.	Victoria.	Adamant.	Imperial.
Imperial Stone Co....	—	—	—	—	111	—	—	—	—	24
Nowell & Robson	263	153	—	—	—	69	35	—	—	—
John Ball	230	—	—	—	—	67	—	—	—	—
J. Mears.....	24	—	—	—	—	60	—	—	—	—
Victoria Stone Co.....	—	—	115	—	—	—	24	—	—	—
G. Wimpey & Co.	264	150	—	109	120	63	32	—	23	25
H. J. Greenham	235	148	—	—	—	50	35	—	—	—

For Embanking Pryor's Bank.

Patrick	£4,820 0 0	Neave	£2,964 0 0
Pedrette	4,000 0 0	Mears	2,897 0 0
Nowell & Robson ..	3,450 0 0	Parry	2 801 0 0
Adams	3,327 0 0	Cooke	2,698 0 0
Shelbourne	3 110 3 3	Wimpey.....	2,551 0 0

For Embanking Wharf Site, Town Mead-road.

Patrick	£4,967 0 0	Parry	£3,750 0 0
Pedrette.....	4,400 0 0	Shelbourne	3,623 5 11
Adams	3,995 0 0	Mears	3,597 0 0
Nowell & Robson ..	3,970 0 0	Cooke	3,390 0 0
Neave.....	3,769 0 0	Wimpey.....	3,634 0 0

MANCHESTER.—For erecting chancel, chapel and vestries, Christ Church, Moss Side. Contract No. 1. Mr. W. Cecil Hardisty, architect, Queen's Chambers, John Dalton-street, Manchester. Quantities by Mr. Charles Jackson, Brazennose-street, Manchester :—

	Original	Amended.
J. Byrom	£6,879 12 8	—
R. Neill & Sons	6,560 0 0	£5,460 0 0
Southern & Sons.....	6,245 0 0	5,163 0 0
W. Brown & Sons	6,091 0 0	4,894 0 0
Wilson & Toft	6,080 0 0	4,921 0 0
F. & E. Haynes	5,971 0 0	4,764 0 0
Statham & Whitby, Pendleton	5,691 0 0	*4,311 0 0

* Accepted.

MITCHAM.—For the erection of a new boys' school at Killicks-road, Mitcham, for the Mitcham School Board. Mr. Robt. M. Chart, Architect, Vestry Hall, Mitcham. Quantities by Messrs. Franklin & Andrews, Ludgate-hill, E.C. :—

Rice & Son	£5,060	J. Burges	£4,580
T. G. Howard.....	4,950	S. Page	4,553
E. Goulder	4,805	Balchin & Shopland	4,437
Lorden & Son	4,850	E. J. Burnand.....	4,350
A. Bullock	4,849	Duncan Stewart, Walling-	
Smith & Sons	4,737	ton*	4,298

* Accepted subject to approval of the Education Department.

NEW BARNET.—For making up private roads, Brunswick-crescent, &c., for the East Barnet Valley Urban District Council, Mr. H. York, Surveyor, Station-road, New Barnet :—

Brunswick-crescent.

Nicholls.....	£787 0 0	Catley	£720 0 0
Griffiths	759 0 0	Adams, Wood Green,	
Dupont	730 0 0	N. *	714 17 4

Brunswick-avenue.

Nicholls.....	£715 0 0	Dupont	£645 0 0
Griffiths	663 0 0	Adams, Wood Green,	
Catley.....	650 0 0	N. *	642 14 4

Brunswick-grove.

Catley.....	£923 0 0	Dupont	£818 0 0
Nicholls	847 0 0	Adams, Wood Green,	
Griffiths	838 0 0	N. *	778 5 10

* Accepted.

PORT TALBOT.—For the erection of a hotel, for the Port Talbot Property Company, Limited. Mr. Geo. Thomas, architect, Queen's Chambers, Cardiff. Quantities by the architect :—

J. & S. Rees.....	£4,738 18 11	E. R. Evans & Bros	£3,596 8 11
Thos. Rossiter.....	4,130 0 0	Horton & Co.	3,540 0 0
Evan Thomas	4,030 0 0	David Davies	3,470 0 0
Morgan Cox.....	3,875 0 0	Thomas Davies	3,370 7 4
D. C. Jones & Co...	3,842 0 0	David Jenkins, Swan-	
C. & F. Gaen	3,714 17 0	sea*	3,300 0 0
W. Lissaman, jun...	3,675 0 0		

* Accepted.

REDHILL (Surrey).—For certain additions and alterations to house, new coach-house, shed, &c., and main entrance at Batts Hill House, Redhill. Mr. Gerard D. Morrison, architect and surveyor, Reigate :—

		Extra for Pointing to Retaining Wall.
Patman & Fotheringham	£1,920 0	£25 0
H. Leney.....	1,785 0	32 10
J. Carrick.....	1,317 10	12 10
D. Debenham.....	1,270 0	25 0
Nightingale Bros.....	1,265 10	2/ per yd. super.

REIGATE (Surrey).—For certain additions and alterations to stables at "The Oaks," Reigate. Mr. Gerard D. Morrison, architect and surveyor, Reigate :—

Patman & Fotheringham ..	£620	J. Carrick..	£396
R. Killick.....	495	D. Debenham	379
A. B. Apted	458	Nightingale Bros. *	327
T. Bushby	442		

* Accepted.

SALISBURY.—For the erection of a new U. M. F. C. Chapel, Milford-street, Salisbury. Mr. W. H. Dinsley, architect, High-street, Chorley, Lancashire :—

Webb & Co.	£3 883 4	P. Tryhorn	£3 533 9
Vincent & Folland	3,650 0	Jenkins & Sons	3,345 0
E. Witt.....	3,580 0	Wort & Way	3,315 0
W. J. & C. S. Young ..	3,558 0	H. J. Kite	3,225 0
E. Hale	3 575 0	W. J. Chinchen, Bourne-	
G. H. Wilkins	3,574 0	mouth (accepted)....	2,950 0

STEVENAGE (Hertford).—For works in connexion with Stevenage sewerage. Mr. Urban A. Smith, Engineer :—

M. Foster	£12,346 8 6	F. Pattinson	£8,178 0 0
Pedrette & Co. ..	10,412 18 3	E. Iles.....	8,115 0 0
J. W. Rowe	9,883 6 6	S. Hipwell.....	8,041 5 3
J. Band	9,685 0 0	J. & T. Binns	8,023 16 8
Wilkinson Bros. ..	9,501 0 0	Thos. Smart.....	7,978 5 0
W. Lee & Son....	9,471 3 7½	Cooke & Co.	7,925 0 0
Siddons & Free-		Jas. Dickson.....	7,803 18 2
man	9 382 0 0	S. Redhouse.....	7 565 0 0
P. W. Symmons ..	8,661 5 0	J. Bloomfield	7,437 5 5
Thos. Adams	8,343 14 6	A. T. Catley	7,350 0 0
Willmott & Sons..	8 239 0 0	W. Cunliffe, Kingston-	
J. Jackson.....	8,192 12 10	on-Thames *.....	6,771 0 0

* Accepted.

SURBITON.—For the execution of road-works, Crane's Park-road and Red Lion-lane, Tolworth, for the Urban District Council. Mr. Samuel Mather, C.E., District Council Offices, Victoria-road, Surbiton :—

Crane's Park-road.

Samuel Atkins	£703 10 0	Free & Son	£653 0 0
S. Kavanagh	697 17 2	Lee & Son	649 0 0
Adamson.....	675 0 0	Franks	592 0 0

[Surveyor's estimate, £685 16s. 8d.]

Levelling and Draining Land, Sewage Farm, Tolworth.

W. Cunliffe	£1,156 15 2	Lee & Son	£898 0 0
S. Atkins	1,100 0 0	S. Kavanagh	897 7 0

[Surveyor's estimate, £1,014 14s 2d]

WIMBLEDON.—For erecting additional story over packing-room at the Wimbledon steam-laundry. Mr. Walter J. Ebbetts, architect, Savoy House, 115, Strand, W.C. :—

H. Harmer, Wimbledon £328

WIMBLEDON.—For the erection of steam-laundry buildings at Wimbledon. Mr. Robert J. Thomson, architect, 64, Hill-road, Wimbledon :—

Milledge & Sons	£1,700	Lorden & Son.....	£1,475
T. Gibbard	1,665	Bulled & Co.....	1,447
Whitehead Bros.....	1,489	Garrett & Son, Balham*..	1,350

* Accepted.

WILTON (Wilts).—For the supply of best picked flint for road-metal, for the Urban District Council. Mr. H. Musselwhite, Borough Surveyor, Ditchampton, Wilts. :—

	No. 1 District. s. d.	
S. Jewell.....	4 3	per c. yard.
E. W. Jones	4 0	,,
A. Cassey, Wilton (accepted)	3 9	,,
	No. 2 District.	
S. Judd	3 6	,,
S. Stratton.....	3 3	,,

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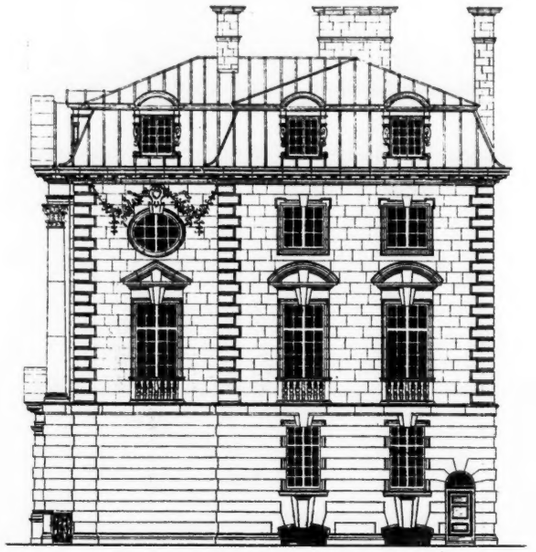
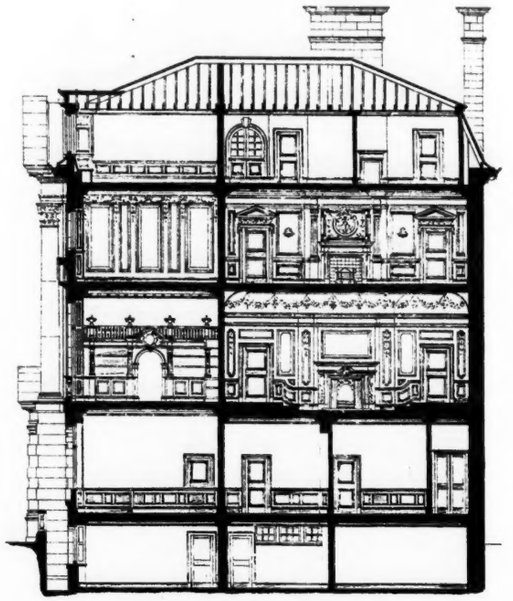
EXHIBITION GALLERIES	=	2120	SUPERFICIAL FEET.
MEETING · ROOM	=	1470	DO. DO.
LIBRARY	=	1320	DO. DO.
EXAMINATION · ROOM	=	1320	DO. DO.

TABLE · SHEWING · AMOUNT · OF · ACCOMMODATION.

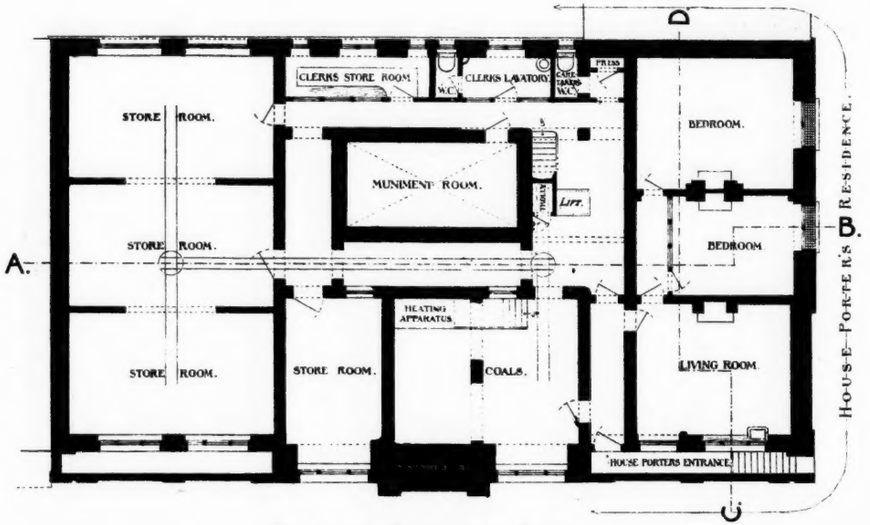
MEETING · ROOM	=	205	SEATS
COUNCIL · ROOM	=	34	DO.
COUNCIL · DINING · ROOM	=	30	DO.
EXAMINATION · ROOM	=	66	DO.



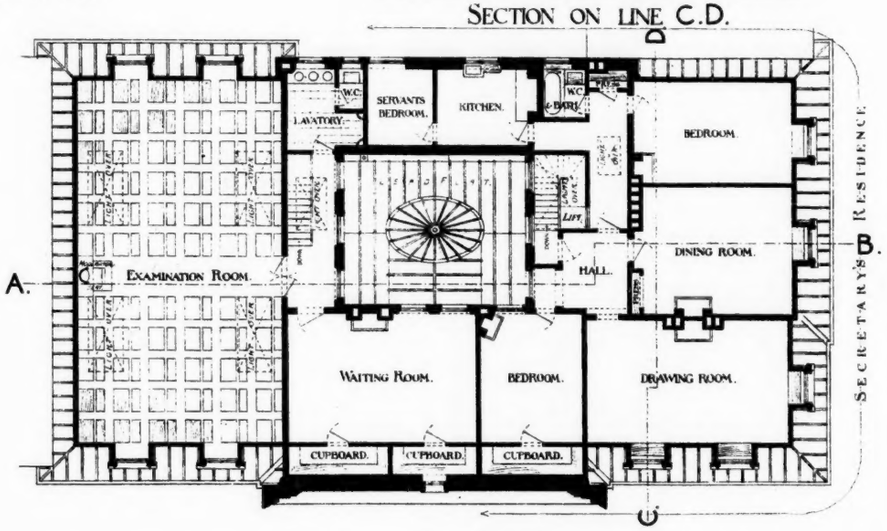
SIDE ELEVATION.



SECTION ON LINE C.D.



PLAN OF BASEMENT FLOOR.



PLAN OF TOP FLOOR.

SCALE OF 10 5 0 10 20 30 40 50 60 70 80 90 FEET

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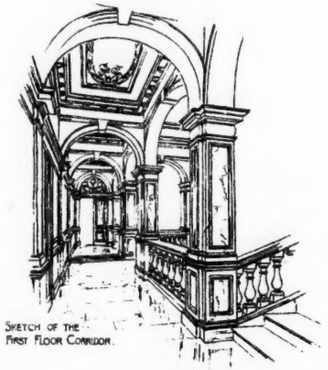
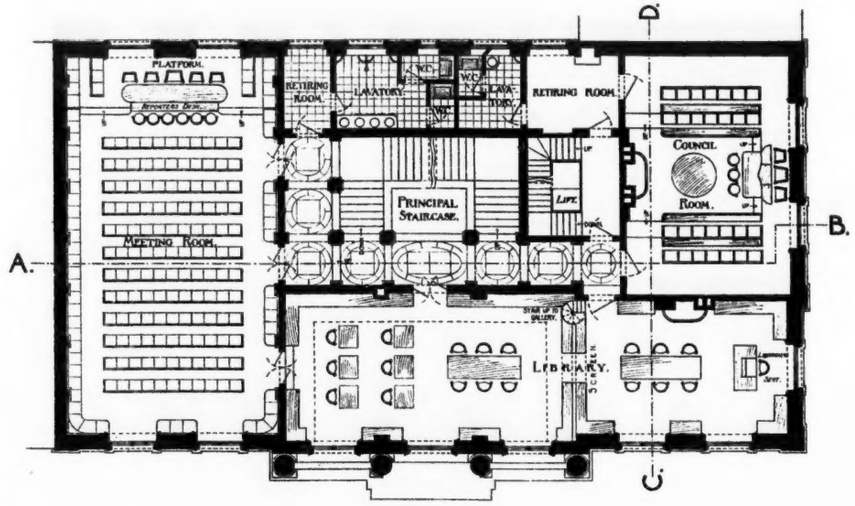


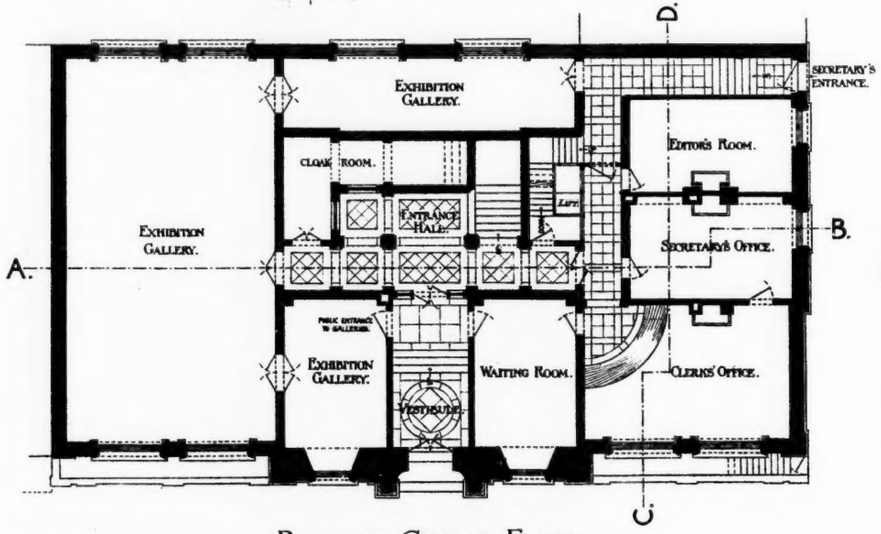
SKETCH OF THE FIRST FLOOR CORRIDOR.

NOTE.

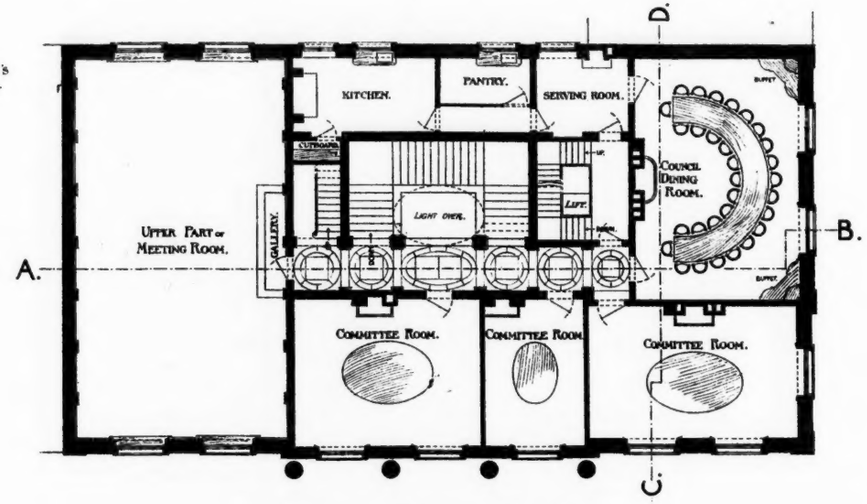
THE · EXHIBITION · GAL-- LERIES · ARE · ARRANGED ON · THE · GROUND · FLOOR WITH · A · SPECIAL · PUBLIC ENTRANCE · FROM · THE VESTIBULE · IF · REQUIRED AS · THE · CONDITIONS · STATE THAT · THEY · ARE · TO · BE "FOR · THE · PUBLIC · EXHIB-- "ITION · OF · DRAWINGS · AND "OTHER · WORKS · OF · ART.



PLAN OF FIRST FLOOR.



PLAN OF GROVND FLOOR.



PLAN OF SECOND FLOOR.

SCALE OF 0 10 20 30 40 50 60 70 80 90 FEET.

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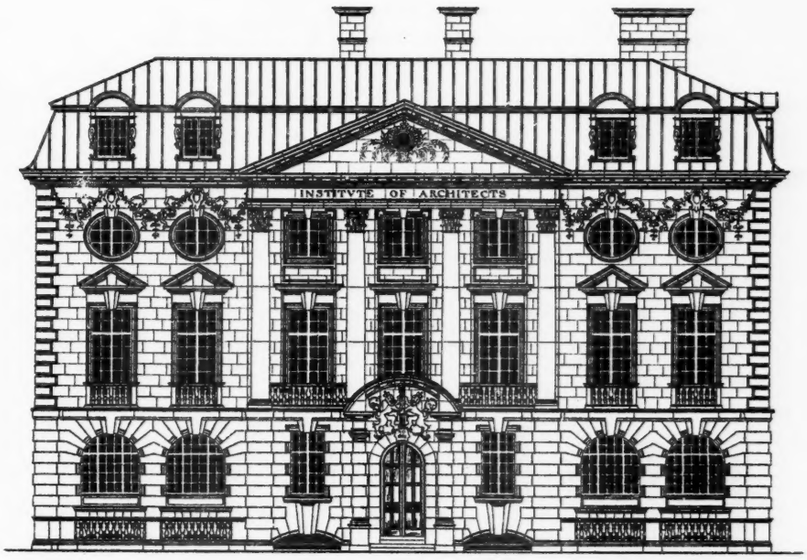
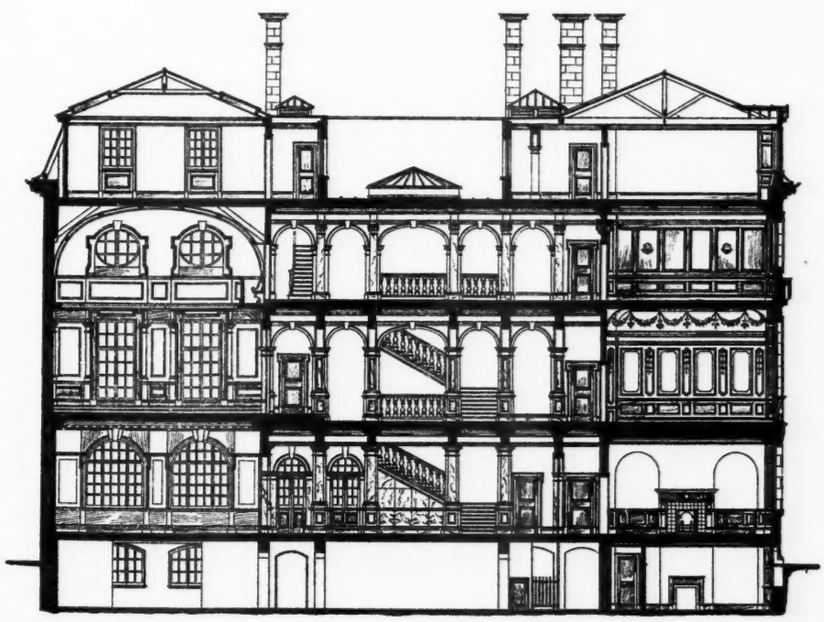
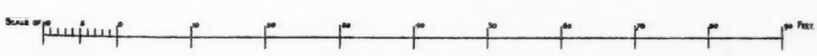


FRONT ELEVATION.



SECTION ON LINE A.B.



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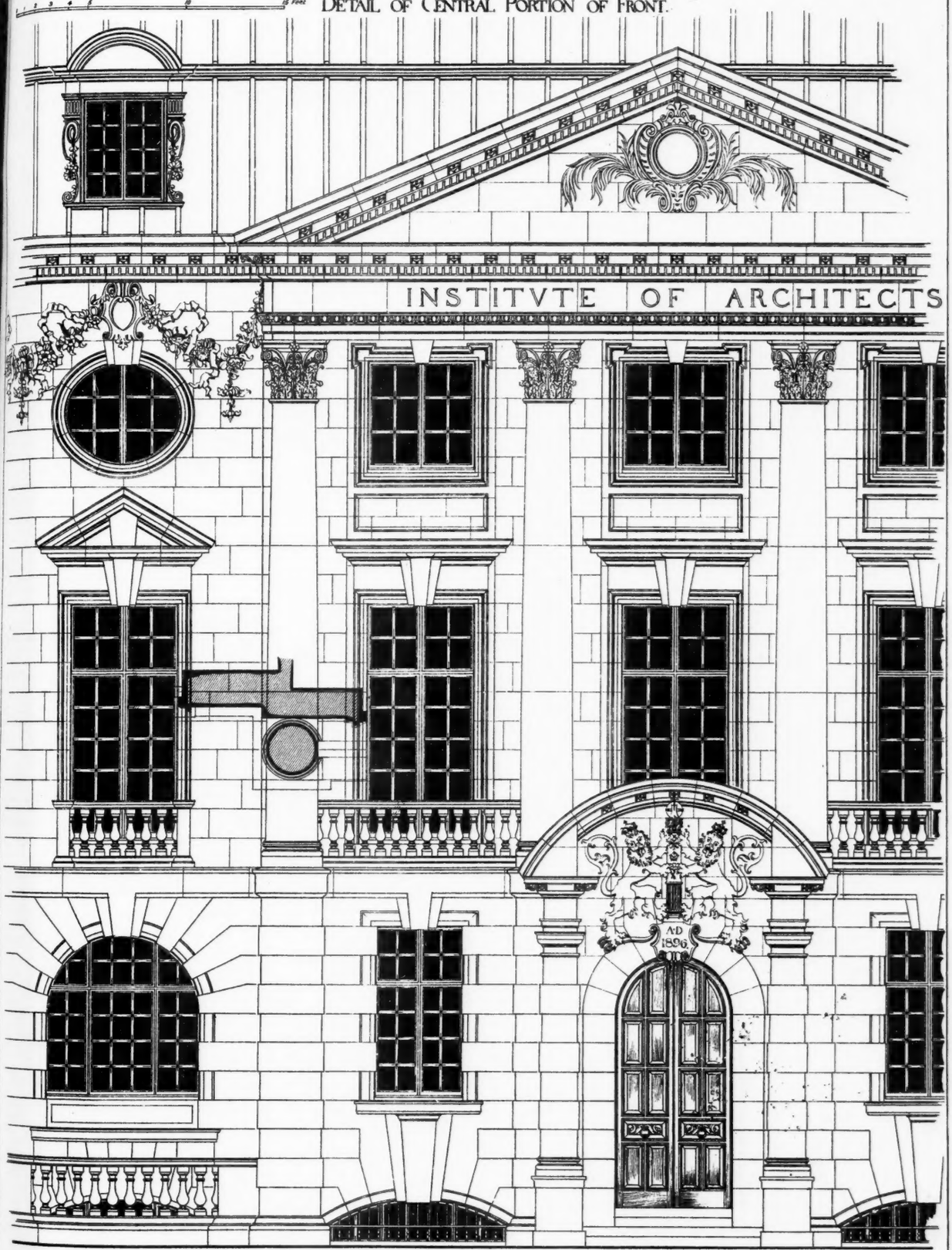
SCALE 1 2 3 4 5 10 15 Feet



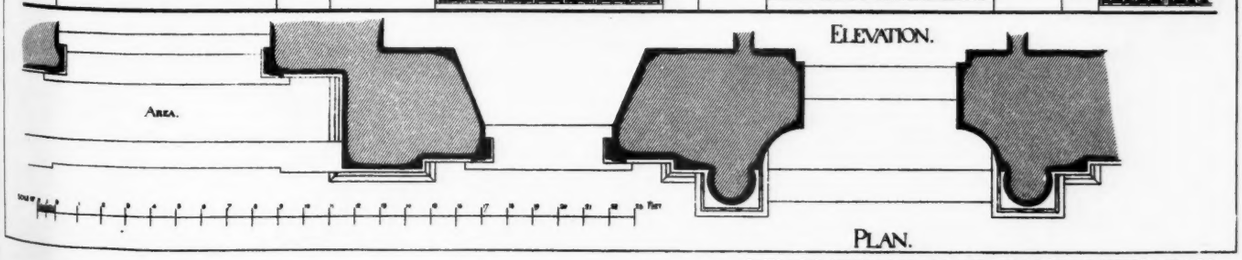
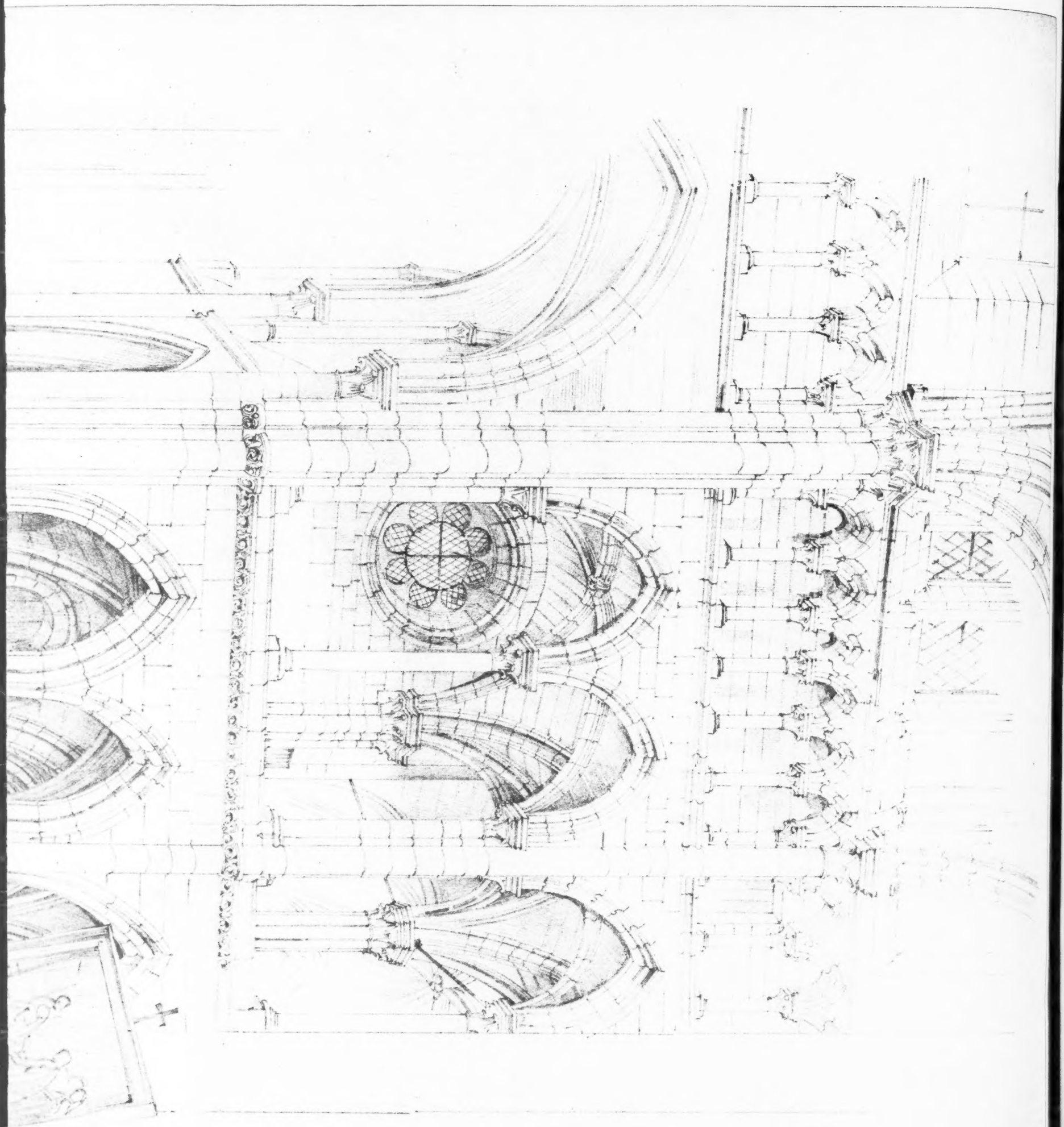


PHOTO-LITHO. SPRAGUE & Co. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

SOANE MEDALLION PRIZE DESIGN, 1896.—By Mr. R. Shekleton Balfour, A.R.I.B.A.

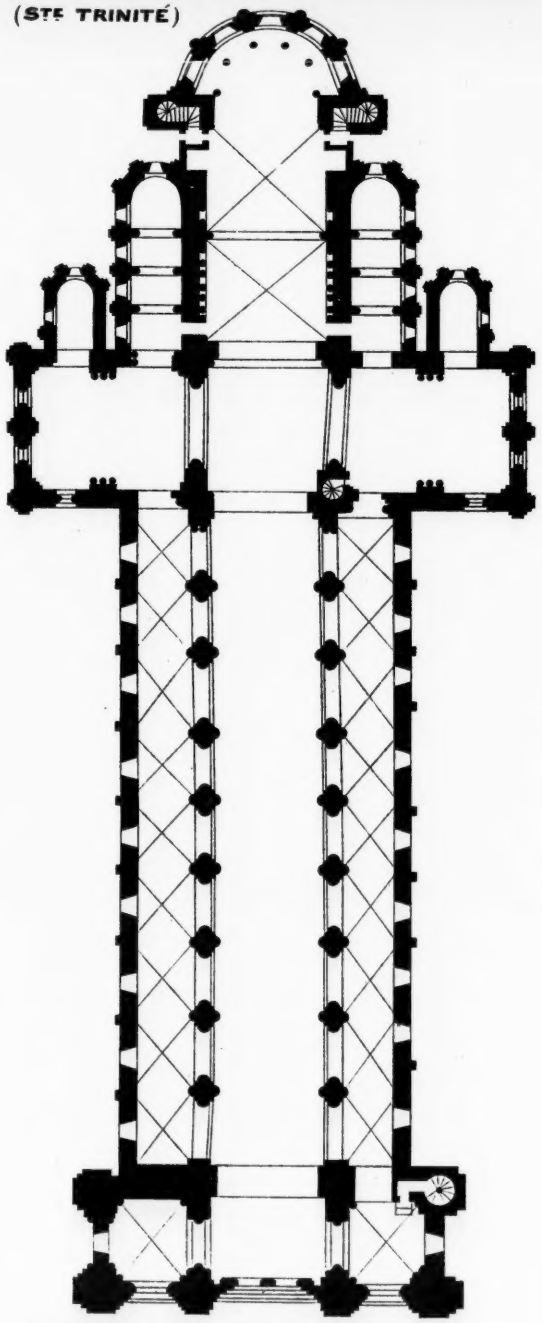


EG Loissons:
View of Commencement of N. Transpt Apse.
K absidal chapel: June 16. 1886.

INK PHOTO SPRAGUE & CO. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

-ABBAYE-AUX-DAMES- CAEN.

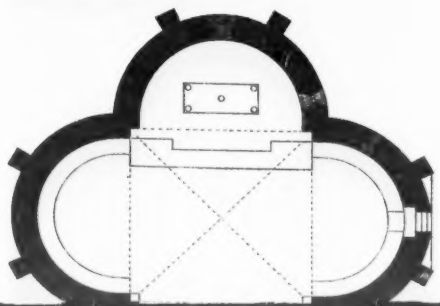
(STE TRINITÉ)



-BEGUN 1062 OR '64 - FINISHED 1067-
-DEDICATED 1072 - (NAVE PROBABLY VAULTED IN 12TH CENTY)

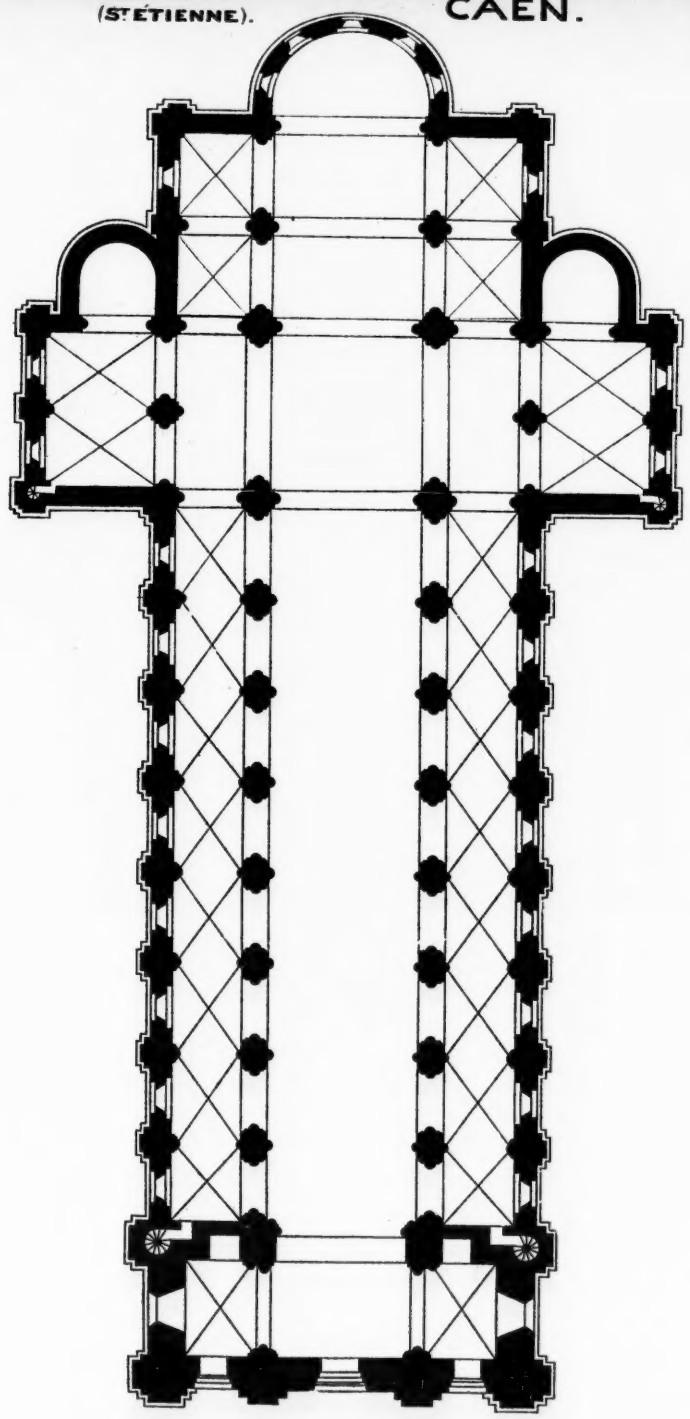
-STE-CROIX-DE-MONTMAJOUR:

- 1ST YEARS OF XITH CENTY -



-ABBAYE-AUX-HOMMES- CAEN.

(STÉTIENNE).

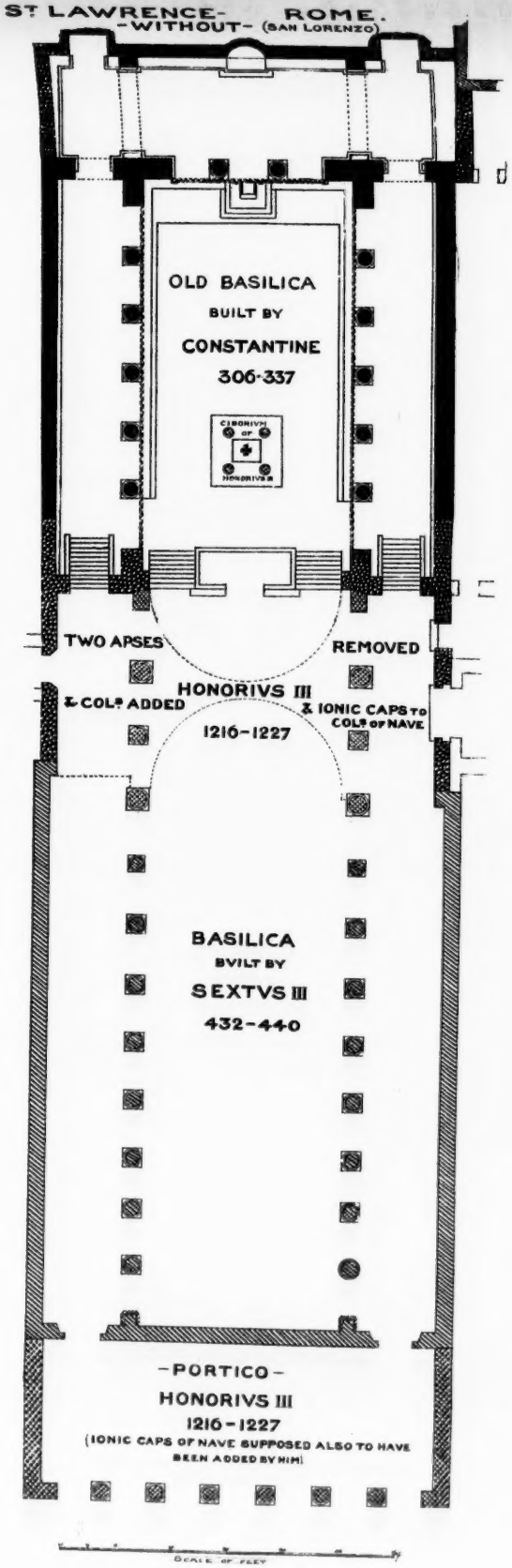


-BEGUN 1064 - CONSECRATED 1067.-
(CHOIR REBVILT IN XIIITH CENTY)

BIELLA. ITALY.

- IXTH OR XTH CENTY? -

ST LAWRENCE- ROME.
-WITHOUT- (SAN LORENZO)



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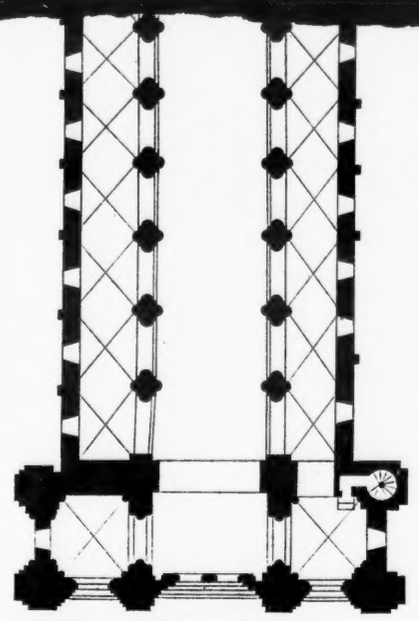

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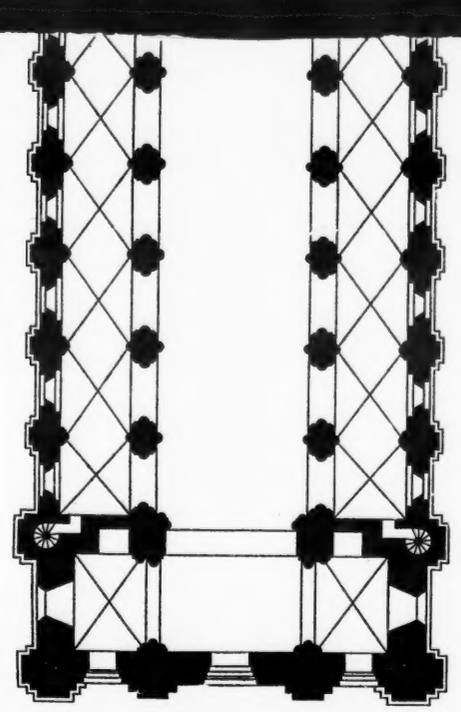
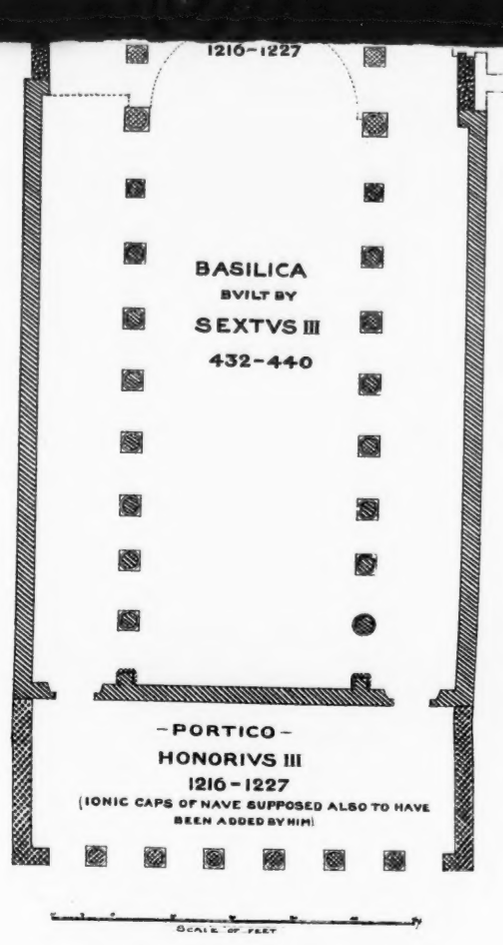
-DEDICATED 1072 - (NAVE PROBABLY VAULTED IN 12TH CENT.)

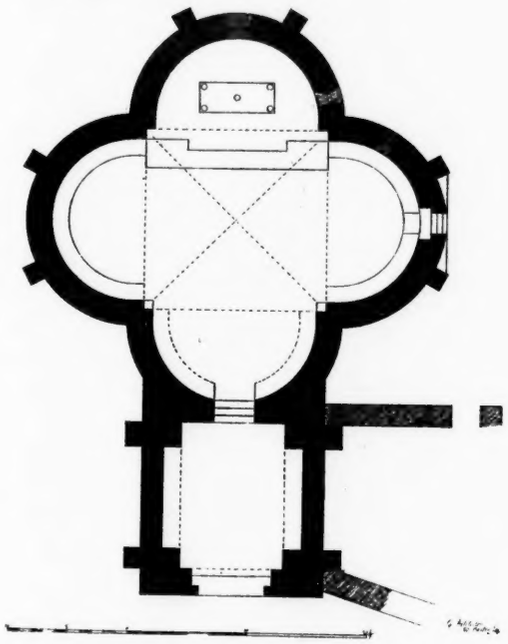


-BEGUN 1064 - CONSECRATED 1067.-
(CHOIR REBVILT IN XIIITH CENTY)



-STE-CROIX-DE-MONTMAJOUR:-

- 1ST YEARS OF XITH CENTY -



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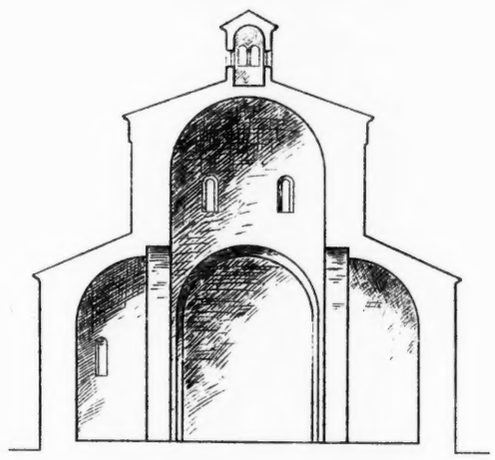
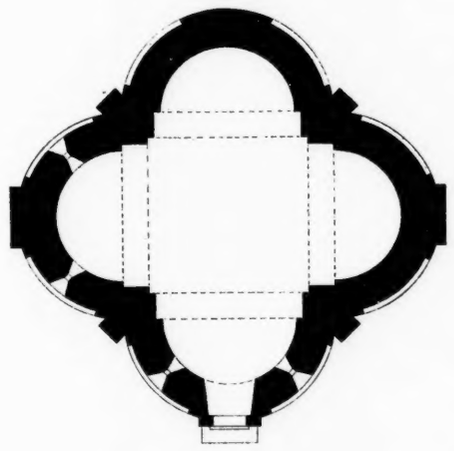
- IXTH OR XTH CENTY? -



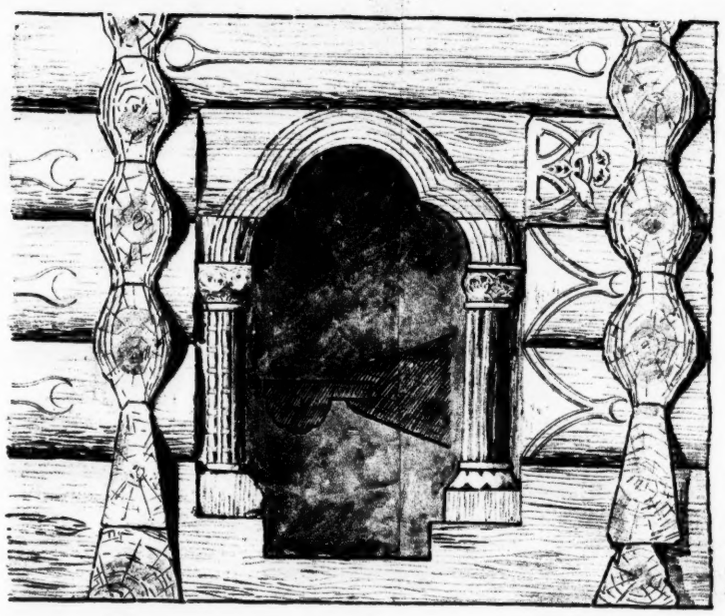
SECTION

BIELLA. ITALY.



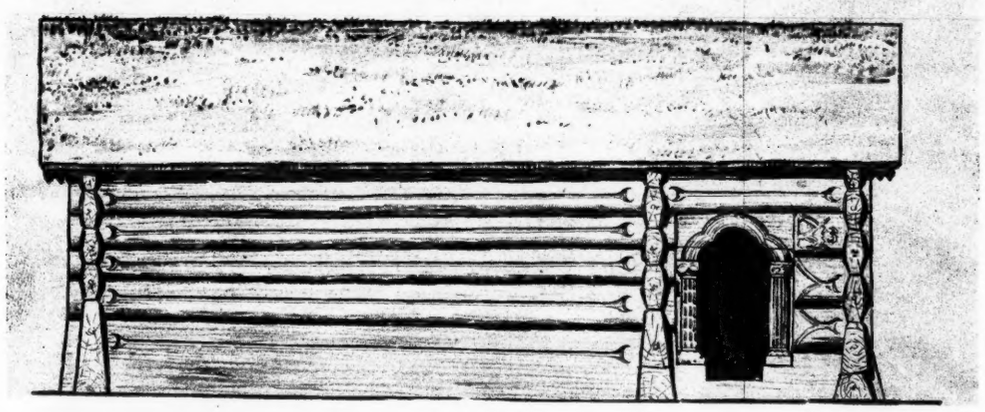
PLAN

UV (RENNEBO)



RUPRICH-ROBERT

UV.(RENNEBO) NORWAY.



RUPRICH-ROBERT

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